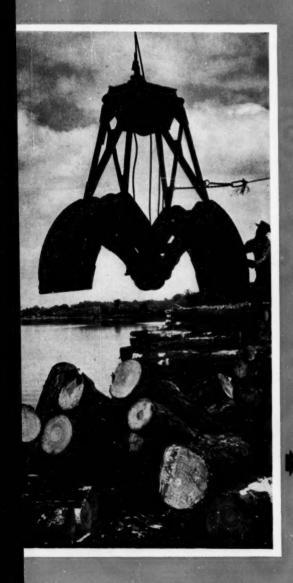
Chemical

November 10, 1956

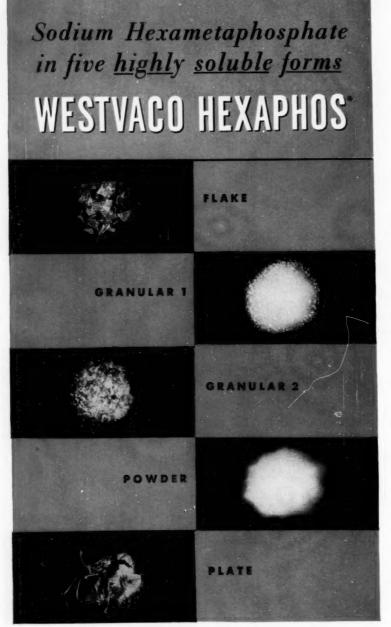
Week

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It's getting harder to make a buck
-chemical sales are still rising, but profits are lagging p. 22
Setting up for silvichemicals: how
two firms are coping with raft of new management problems. p. 32
Rock to fertilizer in one step. St.
Gobain process does it in Northwest Nitro's new plant p. 52
Small computers take the measure
of big research problems at Olin Mathieson p. 62
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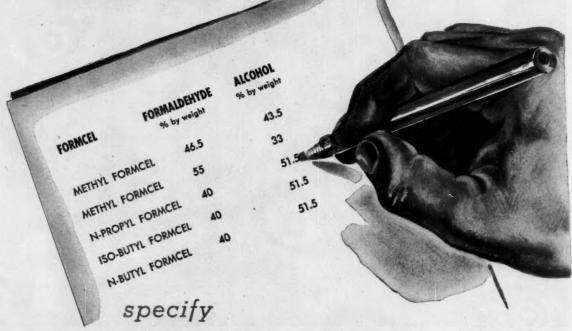
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Chemical

Week

TOP OF THE WEEK

November 10, 1956

Heyden broadens its coatings line, Newport gets access to expansion money in new merger proposal ..p. 21

Here are Squibb's plans as it moves from its traditional home that shadows the Brooklyn Bridgep. 24

Market in bruises: external analgesics elbow for topselling liniment spotp. 41

What's the top problem in purchasing research? CW survey finds it's the noninformative salesman . . p. 88

10 OPINION

10 MEETINGS

17 BUSINESS NEWSLETTER

- 22 CW earnings roundup: profit margins are down, though sales and profit totals are variable
- 23 Is Brown Co.'s future rosy?
 Louis Wolfson's purchases
 indicate he sees opportunities for profit in an investment

25 WASHINGTON ANGLES

27 CHARTING BUSINESS

32 ADMINISTRATION

Two paper makers swap systems for running silvichemical branches

34 Chemical firm teams with 'Voice of America' to explain capitalism to Iron Curtain countries

41 SPECIALTIES

- 42 Thermosetting acrylic resins create a stir in bake-set paint manufacture
- 46 Tung twist—new additive opens more markets to old paint stand-by

52 PRODUCTION

- Northwest Nitro's new Medicine Hat fertilizer plant goes onstream
- 54 Latest approach to economic atomic power: AEC is negotiating a contract for a gascooled reactor

62 RESEARCH

Modest-size computers edge out giant electronic brains in many research uses

68 Novel New York University course relies entirely on industrial speakers to teach research administration

73 TECHNOLOGY NEWSLETTER

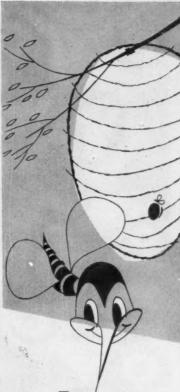
76 MARKETS

Less wood is being treated with preservatives; end-use patterns shift and competition tightens

83 MARKET NEWSLETTER

88 SALES

94 GE's Silicone Products Dept.
is attacking technical servicing on a mass production
basis. Here's how it's done



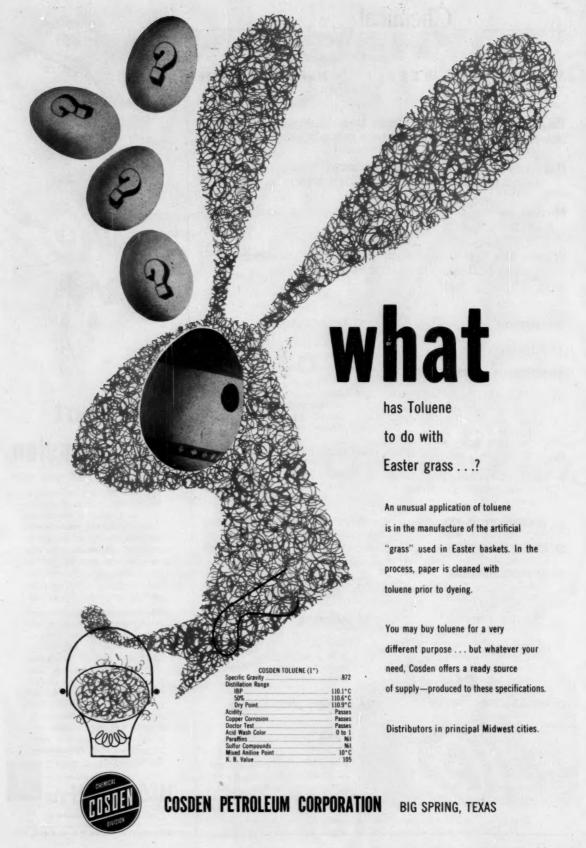
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Chemical Week

November 10, 1956

Vol. 79, No. 19

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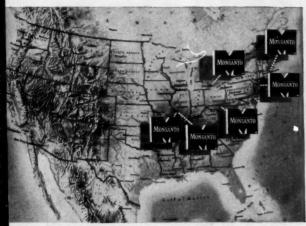


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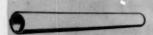
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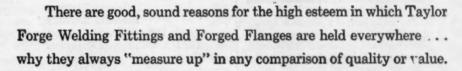
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OPINION

Federal Jobs

To the Editor: The Board of U.S. Civil Service Examiners, Quartermaster Research and Development Center, U.S. Army, Natick, Mass., has issued a Civil Service examination announcement, the results of which will be used to fill chemist positions in all federal agencies in New England.

I should appreciate it if you would, as a public service [publish this letter].

The board announced that it will ... fill chemist vacancies as they arise in U.S. government laboratories throughout New England, with ... salary rates ranging from \$4,000 to \$10,000 per year...

Briefly, the procedure is for interested candidates to file their applications [with the board], be rated on the basis of their experience and training, and then be placed on Civil Service lists in this office. As vacancies occur and federal agencies call on this board for names of eligibles, the board will furnish such names to them for their consideration.

GEORGE TJAERLIS
Executive Secretary
First U.S. Civil Service Region
Board of U.S. Civil Service Examiners
Headquarters,
Quartermaster Research & Development Command
Natick, Mass.

Green for Spring

To the Editor: I was interested in your article (Oct. 13) on the paint market in trucks and damaged automobiles. I'm a little surprised that energetic paintmakers are going to rely on "weather and wrecks" (see last paragraph) to insure market growth. It seems to me that a truly live-wire firm would appeal to the consumer's desire for change—sell him on the idea that to keep his car the same old color is outdated.

I can recall some years ago that one inventor proposed a transparent, two-layer top-piece; the space between the transparent layers was to be filled with different-colored liquids, so that the car's tint matched the owner's whims. That strikes me as being the hard way to a good idea.

If refinishing companies and paintmakers pointed out how easily repainting is done and how swiftly and well, I'm sure they could start a lot of auto owners thinking about changing their cars' colors to match season or mood. Think of the market that could develop into.

EDGAR CURRAN Pekin, Ill.

MEETINGS

National Paint, Varnish and Lacquer Assn., annual convention, Statler, Ambassador and Biltmore Hotels, Los Angeles, Nov. 12-14.

Chemical Market Research Assn., theme: New Tools for Market Research; Harvard Business School, Cambridge, Mass., Nov. 13-14.

New York Pigment Club, Fraunces Tavern, New York, 6:30 p.m., Nov. 15.

Glass Container Manufacturers Institute, semiannual meeting, Arizona Biltmore Hotel, Phoenix, Nov. 12-15.

American Petroleum Institute, 36th annual meeting, Conrad Hilton and Palmer House Hotels, Chicago, Nov. 12-15.

American Public Health Assn., 84th annual meeting, discussions of radioactive waste disposal, water resources policies, air pollution; Convention Hall, Atlantic City, N.J., Nov. 12-16.

Manufacturing Chemists' Assn., midwinter conference, Statler Hotel, New York, Nov. 20.

American Rocket Society, 11th annual meeting, Henry Hudson Hotel, New York, Nov. 25-30.

American Institute of Consulting Engineers, annual dinner, Waldorf-Astoria, New York, Nov. 27.

American Chemical Society, 9th National Chemical Exposition, Cleveland Public Auditorium, Cleveland, Nov. 27-30.

Armour Research Foundation and others, International Ozone Conference, Hotel Sheraton, Chicago, Nov. 28-30.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: H. C. E. Johnson, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



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If this folder reported in detail all the laboratory testing and research that have gone into its preparation, it might take you 10 hours to read. But you can read it from cover to cover in 10 minutes—and throw it away when you're through!

But, toss it or treasure it, if you use stearic acid there's a story in this folder for you. It's quick, it's basic and it's documented—it's this:

Swift's Stearic Acids invite your comparison on the basis of color, color and heat stability, freshness and application purity to that of any product manufactured for similar use.

The folder reports on exhaustive comparative tests made between Swift's Stearic Acid and as many as 7 similar products on the above points. Reduced to their essentials, the results of these tests mean this to you:

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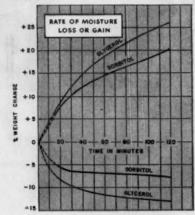
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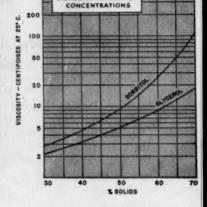
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500

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Sorbitol gains or loses moisture at a considerably slower rate. The curves above show the rate of gain of moisture when solutions containing each humectant are transferred from equilibrium at an atmosphere of 58% relative humidity to one of 79% R.H.; and the loss of moisture on transferring from 58% R.H. to 32% R.H. Under varying humidity conditions, sorbitol gives better short-time protection against moisture change.

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Sorbitol is non-volatile. It stays put ... cannot lose its effectiveness even after long periods of storage. Because sorbitol does not evaporate, it is a permanent conditioner that can be counted on for protection even when surface-to-volume ratio is high.

High viscosity

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The inherently higher viscosity of sorbitol solutions gives extra protection against the effects of high humidities. Sorbitol not only picks up less water, but also retains a comparatively high "body."

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Sorbitol is compatible with other polyhydric alcohols, sugar syrups, glues, dextrins, and other materials normally encountered in products requiring conditioning.

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EXAMPLE

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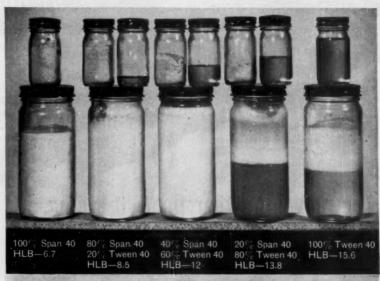
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The upper photo shows a simple test for determining the required HLB of an emulsion (in this case a liquid emulsion of 35% paraffin in water). Choose any two emulsifiers of similar chemical type, one of low HLB and one of high HLB. Combine in various percentages to produce the best possible emulsion. Calculate the HLB value of the emulsifier blend used for the best emulsion (in this case 12). Emulsifiers or blends at other HLB values can be immediately eliminated from further trial.

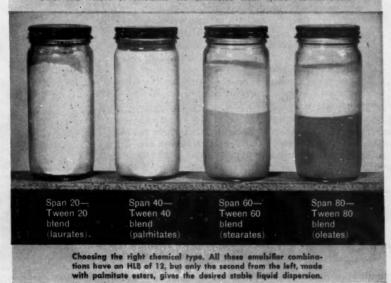
Now, other chemical types of emulsifiers can be tried at an HLB of 12, as shown in the lower picture, where various types of fatty acid esters are being evaluated. Other chemical types can be tried in the same way, always at an HLB value of 12.

SEND FOR BOOKLET

For a list of the types of surfactants we supply, and their HLB values, write for the catalog, "Atlas Organic Chemicals,"



Determining optimum HLB value of emulsifiers to make liquid emulsion of 35% paraffin. Only two emulsifiers are needed for such a test. Note that emulsions at left are solid. Satisfactory liquid dispersion is obtained at center, with HLB of 12. Other HLB values of emulsifier are eliminated from further consideration.





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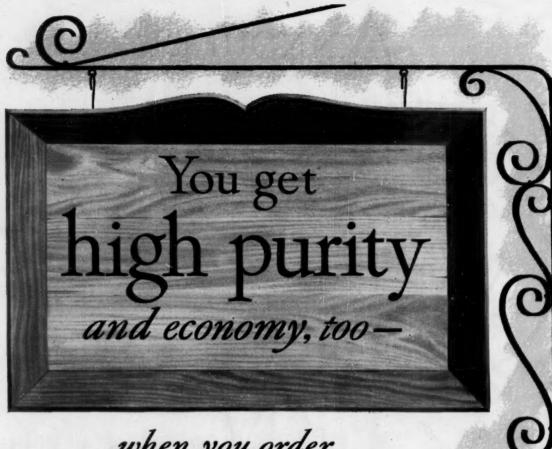
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Business

Newsletter

CHEMICAL WEEK
November 10, 1956

Remember, as you assess the election returns, that at least for the months immediately ahead, the foundations of continuing, high-level prosperity are so firmly set that they can hardly be changed.

The results, of course, have affected that all-too-sensitive business indicator, the stock market, to an exaggerated degree. And there's no reason to believe that the market won't be back to where it was last week, once the traders assess the true situation (barring a significant worsening of the international picture).

How much better can business really get, even with a better "business climate," or with a government whose spending may spur further price inflation?

Look at these basic economic elements:

Consumer income is at an all-time high and is still rising. Commerce Dept. figures, out this Monday, showed that personal income during September ran at a \$328.4-billion/year rate. The rate has increased every month so far this year.

New chemical plant building, also going on at record levels (see p. 22), should be up further in 1957—both on a dollar basis (since there has been a rise in material costs) and on an absolute basis. Whether or not firms have planned to build a greater number of new facilities in '57, many companies simply haven't been able to spend all the money in '56 they wanted to for materials and equipment.

Government expenditures are increasing and will likely keep rising. Where spending by all government units in the U. S.—federal, state and local—totaled \$78 billion last year, they should reach \$81 billion this year. And the end to such increases is not in sight; rather, it looks as if this is the beginning of a prolonged rise.

Chemical production indices for 1957 should also be up. One business consultant who estimates that chemical and petroleum production for '56 will be about 66% over the 1947-49 average feels that it will be 75% above that average in '57. He estimates total business in '56 and '57 as 42% and 48% above the 1947-49 average, respectively.

Chemical inventories, too, are coming up for discussion. One statistician who checked with chemical executives forecasts a 1% physical rise in inventories during '57—approximately \$35-million worth of chemicals.

Chemical sales, the same survey indicates, may go up 9%.

So, while you look at, listen to and read election returns, don't let your political pleasure or sadness be diluted by worry over economic matters affecting the months ahead. You needn't worry.

Business

Newsletter

(Continued)

Of course, if you want to worry about the situation over the longer pull, there are, as usual, things to look into. The major one concerns profits. The sales of the 32 chemical companies whose individual reports appear on pp. 22-23 total \$7.5 billion for the first nine months of '56. This represents a 7% increase over the comparable '55 figure of \$7 billion. But nine-month profits were \$718 million, up only 0.15% from last year's comparable figure.

Some of total may reflect special situations that accompanied generally listless textile markets, the slow-up in automobiles and the steel strike. But many companies were reporting that increased capacity and keener competition were keeping down prices, while their costs of maintaining and operating new capacity have gone up.

However, the resurgent increase in business activity since Sept. 30, which includes such fields as steel and autos, plus the price increases that are now taking hold, may reverse the decline in profits. If such a situation carries into 1957, this worry can be laid to rest.

There's been a switch in plans on that polyethylene plant planned by Brea Chemical and Koppers. Where the firms were to jointly build both a 60-million-lbs./year Ziegler-process polyethylene plant and an ethylene unit, they will now build only the polymerization facility. Brea's parent, Union Oil, will immediately begin construction of a unit at its Los Angeles refinery capable of producing 100 million lbs./year of ethylene, much of which will go to the Brea-Koppers plant. The ethylene unit will be completed early in '58, a few months before the plastics unit could now be brought into production.

Ethylene supplies may also be the deciding point on a new Du Pont of Canada petrochemical unit. The firm has optioned a 350-acre site at Sarnia from where it could receive ethylene or other hydrocarbon raw materials from Imperial Oil's refinery there.

Salt deposits may be used to attract manufacturers to another Canadian industrial development. This one's just across the Detroit River from River Rouge, Mich. Two Morton Salt affiliates have acquired some 1,900 acres of land, a deepwater wharf and railroad trackage for industrial development purposes.

Cities Service, incidentally, may erect that refinery near Bronte, Ont. (CW Business Newsletter, Nov. 3). Such a unit would be located immediately east of property owned by Shell Oil.

Must three chemical plants accept annexation of their land by the city of Deer Park, Tex.? A "friendly" suit to declare such annexation void has been filed in the name of Diamond Alkali, Rohm & Haas and Lubrizol.

BRIEFS

for buyers of

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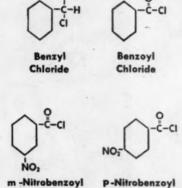
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A buyer's guide on caustic soda

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You'll discover that our commercial grade is only slightly less pure: iron, .0005%; free chlorine, a trace; sulfates, .003%; organic matter, .001%; arsenic, not a jot.

Both grades are available for your use in 13-gallon glass carboys and in rubber-lined tank cars in 18°, 20°, and 22° Baumé.

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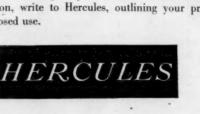
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NEWPORT'S SCHLESINGER, HEYDEN'S ASKIN: They're charting a merger that means . . .

A Bigger Push in Protective Coatings

By this Friday, if everything goes as planned, the boards of directors of two chemical firms will have met to ratify merger of their firms into Heyden-Newport Chemical Corp.

The new firm, successor to Newport Industries and Heyden Chemical, will become a reality early in 1957, if okayed by directors this week and by stockholders next month.

The merger is an interesting one. Where neither Heyden nor Newport has been among the growth leaders of the chemical industry, the new firm will have a combination of strong points that neither has had alone. Heyden, which has had a strong cash position since sale of its antibiotic division for \$13.7 million to American Cyanamid (CW, Nov. 14, '53, p. 15), will help Newport, which, though it has borrowed \$6 million for expansion

in the last three years, has still seen a halving of its \$3.6-million '51-'53 cash position. Newport, second-largest U.S. naval stores producer, will complement the line of protective coatings chemicals made by Heyden. Heyden's line includes such materials as formal-dehyde and pentaerythritol, which it makes from methanol, and the variety of products made by what had been Nuodex Products Co., which Heyden purchased for \$2.8 million (CW, Nov. 13, '54, p. 16).

Price to Pay: The terms for the merger, too, show a give and take. Judging only by the stock prices of the firms, immediately before announcement that a merger was under consideration (CW Business Newsletter, Nov. 3), Newport share-owners should have received about one share of Heyden for each share of Newport

common stock. But Wall Street insists that Newport's 73-year-old chairman, Armin Schlesinger, has said that in a merger, he would accept no less than \$30/share (though shares were selling for about \$20), roughly equal to two Heyden for one Newport. The actual ratio: one and a half Heyden shares for each Newport common share.

Though there are many values in Newport that the firm's stock has not reflected (potential earnings from both its abuilding naval stores unit at Telogia, Fla., and its fine chemicals unit at Pensacola), the fact that the transfer would about halve the present \$13/share equity each Heyden stockholder has in the firm's cash reserves points up the selling job that Heyden management, under President Simon Askin, may have to do to get approval of the merger from its stockholders.

	Sales 9 mo. '56 (million dollars)	Change from '55	Net Profit 9 mo. '56 (million dollars)	Change from '55	Profit Margin 3rd qtr. '56
Allied Chemical	498.6	up 4.9%	35.0	down 11.1%	6.1% 8.8% 11.5% 6.2% 3.1%
American Cyanamid ¹	375.0	up 11.5%	33.4	up 22.4%	8.8%
American Potash	31.2	up 53.3%	3.7	up 29.2%	11.5%
Atlas Powder	50.0	up 7.8%	3.3	up 26.0%	6.2%
Commercial Solvents	41.3	up 8.9%	2.0	down 3.8%	3.1%
Diamond Alkali	92.0	up 10.7%	8.0	up 28.4%	8.2%
Dows	443.1	up 17.6%	42.6	up 30.7%	7.5% 13.2%
Du Pont ²	1,393.3	down 1.7%	185.3	down 13.9%	13.2%
General Aniline	96.0	up 6.9%	3.7	up 32.9%	3.2%
Hercules Powder	177.5	up 4.6%	13.7	down 3.7%	7.5%
Heyden	18.3	up 1.1%	1.2	up 7.8%	3.2% 7.5% 9.6%
Hooker ³	73.8	up 6.7%	8.6	up 11.3%	12.0%
Interchemical	82.7	up 12.6%	3.3	up 4.7%	3.6% 3.3% 12.2% 5.4%
Int. Min. & Chem. ³	77.5	up 6.0%	5.6	up 60.9 %	3.3%
Merck	129.7	up 10.0%	15.5	up 18.0%	12.2%
Monsanto	407.4	up 4.2%	28.8	down 12.1%	5.4%
Pennsylvania Salt	54.9	up 6.7%	2.9	up 10.5%	4.4%
Pfizer	128.4	up 7.1%	13.3	up 16.3%	9.1%
Rohm & Haas	121.4	up 2.3%	11.1	down 11.8%	8.5% 8.1% 7.3% 33.4% 10.1%
Spencer	39.3	up 29.3%	5.5	up 26.8%	8.1%
Stauffer	119.4	up 9.4%	9.7	up 1.9%	7.3%
Texas Gulf Sulphur	66.3	down 5.7%	21.8	down 9.9%	33.4%
Union Carbide	937.1	up 9.3%	102.3	up 0.8%	10.1%
Victor	36.8	up 3.8%	2.6	down 4.7%	6.8%
		SEMICHEMIC	ALS		
Air Reduction	123.8	up 13.0%	11.6	up 38.9%	9.1% 6.4% 12.7%
Celanese	137.0	up 3.5%	8.9	up 2.4%	6.4%
Eastman Kodak ⁴ Food Machinery ⁵	500.7	up 2.8%	61.0	up 5.2%	12.7%
Koppers	222.9	up 39.1%	9.4	up 25.7%	3.4%
National Distillers	388.9	up 8.8%	14.5	up 34.2%	3.6%
Olin Mathieson	455.5	up 11.2%	35.9	up 10.6%	9.2%
Pittsburgh Coke & Chem.	49.4	up 14.8%	2.7	up 7.6%	4.6%
Rayonier	106.0	up 0.3%	11.0	down 9.8%	3.6% $9.2%$ $4.6%$ $9.1%$
 excludes extraordinary gain. excludes dividends from General Moto 9 months to August 31. 	ors.	4 36 weeks to S 8 Figures not year d—deficit.	ept. 4. et available.		

Sales Are Booming, but Profit Margins Lag

The present trend toward a sales plateau for the over-all U.S. economy, though it hasn't yet had much influence on chemical expansion plans mapped out in '55 and earlier this year, is beginning to pinch. It is taking a toll in decreased profit margins. Third-quarter earnings, though encouraging, reveal that chemical companies are beginning to feel the pinch brought on by tighter money, a sharp dip in automobile production

and other signs pointing to an economic leveling-off period.

Of the 32 firms reporting in CW's quarterly survey, 22 showed a decrease in profit margins from the second quarter of the calendar year, and 18 had margins below the last year's third quarter.

But these figures, ratios of sales to after-tax profits, do not mean that profits are suffering—merely that they are not rising at the same rate as sales volumes. For the most part, dollar profits are still climbing.

While there were a few disappointments this quarter, the big majority of companies are still ahead of last year in volume.

Even the fertilizer producers, for whom July to September is far from a peak selling period, have, in general, performed satisfactorily.

Plus for the Fourth: Outlook for the fourth quarter is optimistic. Com-

Change from 2nd qtr. '56	Change from 3rd qtr. '55	
down 1.2%	down 2.1%	
up 0.3%	up 1.0%	
no change	down 3.9%	
down 1 107	0 907	
down 1.1% down 1.5%	up 0.2% down 0.9%	
down 0.4%	up 0.6%	
down 0.4%	up 0.0%	
down 3.5%	down 1.6%	
down 6.3%	down 1.8%	
down 0.5%	no change	
down 0.3%	down 1.6%	
up 2.2%	up 4.5%	
up 0.9%	up 0.4%	
ар 0.270	up 0.4/0	
down 0.9%	down 0.5%	
down 4.5%	d	
up 1.4%	down 0.1%	
down 2.3%	down 1.2%	
down 2.0%	up 0.5%	
down 2.4%	up 0.9%	
down 2. 4/0	up 0.370	
no change	down 1.1%	
down 6.8%	up 0.8%	
down 1.5%	down 1.3%	
up 0.8%	down 1.9%	
down 0.9%	down 1.1%	
down 0.7%	down 0.8%	
70		
down 0.3%	up 0.8%	
up 0.5%	up 2.4%	
down 0.1%	up 0.1%	
	ap 0.2/0	
down 0.7%	down 1.0%	
down 0.1%	up 0.3%	
up 1.8%	up 0.2% down 1.0%	
down 1.2%	down 1.0%	
down 2.5%	down 2.8%	

panies, almost without exception, look for good windups for 1956 operations.

But more important for the future, in spite of rising costs for construction and labor, companies are pushing ahead, investing in expansion.

As a result, according to a new Commerce Dept. summary, chemical industry capital outlays will run to a record-breaking \$853 million during the second half of 1956, up 32% from first-half figures. This would bring the year's total to \$1.5 billion, 48% higher than in 1955 and 5% greater than the previous record, set in 1953.

Wolfson Looks at Brown

A three-way mixup over contracts, ownership and expansion highlights Brown Co.'s recent announcement that a prime contract for the \$4-million conversion of its 350-tons/day sulfite pulp mill to magnesia pulping would go to Louis Wolfson's Merritt-Chapman & Scott Corp.

Focal point was financier Wolfson's revelation that he has personally acquired 100,000 shares of common stock in the Berlin, N.H., firm. Reports still persist that Wolfson and his associates have together purchased at least 270,000 shares. Though Wolfson refuses to comment on any group purchase, Wall Street sources believe that the Florida financier now controls over 10% of Brown's 2,606,765 shares. Coupled with reports of such purchases was the practically simultaneous announcement that M-C&S had been awarded the contract-as second-lowest bidder.

Though Wolfson stresses that no officer of M-C&S knew of his investment in Brown, and that the contract award was negotiated solely on M-C&S's previous record in the field of pulp and paper mill construction, what raises eyebrows is the thought that manipulator Wolfson might be interested in adding paper and related manufacturing activities to his present string of diversified holdings.

Brown has long been a leader in the production of industrial paper and fiber products, is gradually trying to diversify into home paper products such as bathroom tissue and hand towelings. Additionally, it makes chlorine, chloroform and soda bleach, often has salable surpluses, which it markets to textile firms and paper producers. In the past two years, it has taken strong steps to consolidate its earnings potential by sale of its marginal Canadian interests.

Magnesia Move: M-C&S has been hired to convert Brown's sulfite mill to magnesia-base pulping. The process diverts by-product liquors into an evaporator for subsequent recovery of furfural and pulping chemicals. Fuel material that can produce a good part of process heat requirements is also recovered.

The furfural and magnesia pulping units are part of Brown's 1955-57 \$17-million expansion and improve-

ment program. This program, by and large, is being paid for from cash reserves realized from the sale of the company's Canadian subsidiary, Brown Corp. Until the sale, the company had found it difficult to set aside money for large-scale building. Even now it expects the capital spending program to mean thinner capital reserves for its operations and to interfere in some degree with its '56 earnings.

Canadian Episode: Near the end of 1954, Brown Co. sold, for \$49.5 million, its Canadian holdings, explaining that fluctuations in highgrade pulp markets in Canada made Brown Corp. of doubtful value to the parent firm. Until then, consolidated net income had been variable: in 1952 it was \$4.4 million: in '53. \$3.1 million. After the sale. Brown Co.'s net income, for the '54 year, amounted to \$3.2 million. Brown Corp.'s '54 net was about \$200,000. Hopes for '57 are that sales and earnings will approximate the best recorded for Brown Co.-cum-Brown Corp. before the sale. As of June 16, '56, the six-month mark in Brown Co.'s fiscal year, sales were \$30.5 million, about \$3 million more than in the same period of '55. At the same time, earnings were \$1.1 million, up 56% from the '55 period and only \$700,000 under the earnings for the entire '55 fiscal year.

Investor Conference: Wolfson expresses faith in management of the firm. Its strong cash position as a result of the Canadian sale, as well as the evident improvement in earnings, are considered by many people to be major reasons for the Wolfson group's investment. Whether Wolfson may try to take over the management is, to those outside his group, purely a matter of conjecture.

Wolfson is well-known in financial circles for his policy of investing in organizations whose stock is patently undervalued. In reply to questions, Wolfson admits that his purchase of Brown Co. stock—at above the going stock-market price—"was prompted solely by confidence that its value, well below book value and the average of other companies in the pulp and paper industry, would improve during the next several years."



BROOKLYN BRIDGE and Squibb won't be neighbors. Squibb is . . .

Bowing Out of Brooklyn

Relocating a big production complex means problems—legal, labor and competitive—and the bigger the plant, the more there are. So it was when Olin Mathieson's E. R. Squibb Division decided to gradually shut down its 1,200-employee production center in Brooklyn, N.Y., and transfer operations to another major plant location—New Brunswick, N.J. (CW Business Newsletter, Nov. 3). Such moves always bring objections—from unions, civic leaders and the like. Here's how opposition to the Squibb move seems to be shaping up:

Oil Chemical and Atomic Workers, which represents workers at the plant, is opposing the transfer decision on the grounds, first, that a worker who could not move to New Brunswick would lose all of his retirement benefits if he were under 50 years of age. Secondly, union officials point out that whether workers leaving the company would get severance pay is still to be negotiated. These and such other matters as possible payment of commutation fees and moving expenses will be among items the union hopes to work out with the company-if it is unable to prevent the shutdown.

Meanwhile, city and state officials

met at the offices of New York Dept. of Labor last week to discuss implications of the move. Morris Tarshis, an official in the department, said the group hoped to propose a meeting with company officials to discuss the possibilities of remaining in Brooklyn. Tarshis indicated that New York's Governor W. Averell Harriman had been contacted on this matter; but the governor has not issued a statement.

The Brooklyn Chamber of Commerce, too, has been asked to confer with company executives. No date has yet been set for such a conference, but Paul M. O'Brien, of the commerce group, said his organization would use its influence to try to change zoning laws or regulations concerning transportation routes, which are set by the city, if the company desired. Earlier this year, the chamber proposed a zoning law change that ultimately permitted Pfizer to modify its Brooklyn plant.

Move for Money: However, despite all these efforts, there's little chance the company will change its mind. The real crux of the matter is that Squibb can probably save itself money by consolidating the Brooklyn and New Brunswick operations.

Company officials point out that there is some duplication of effort and that the cost of maintaining separate plants is cutting into profit margins. They also point out that the plant, which has been in Brooklyn for 98 years, is outmoded, and that much of the machinery and internal engineering cannot be set up for maximum efficiency.

While some new construction at New Brunswick will probably be necessary to take care of the additional activities, the company feels that such cost will be more than offset by increased efficiency.

In order to make still other savings, it's likely that certain work may be moved elsewhere than to New Brunswick. For instance, the company ships mineral oil from the West Coast for packaging in Brooklyn. After the Brooklyn unit is closed down, the packaging operation may be done on the West Coast.

Other Plans: Queried on the move's possible effect on Brooklyn employees, a company official stated: "The company is very conscious that this will pose problems both personal and businesswise. Under the circumstances, however, it is the most logical answer and in the best interests of the majority of our people. . . . "As jobs become available in New Brunswick, offers will be made to Brooklyn personnel in line with the requirements of the new location."

The Brooklyn unit is the company's first and largest plant, manufacturing several hundred different products. The move may mean a substantial economic loss for Brooklyn; and may again point up to city officials the need for long-range planning to work out programs that will not only attract new industry but also keep present companies.

EXPANSION

Coal Chemicals: Algoma Steel Corp. Ltd. will build a \$6-million coke oven battery at Sault Ste. Marie, Ont. When completed in 1958, the ovens will increase Algoma's coke production about 10%.

Uranium: Lucky Me Uranium Corp. has been advised that preparations are complete for Atomic Energy Commission approval of a proposed new uranium processing mill in the Gas Hills area of Fremont County, Wyoming.

Washington Angles »

>> Bigger fertilizer sales when the government's soil-bank program moves into full swing on 1957 crops. That's the word, delivered to the Midwest Soil Improvement Committee last week, from Asst. Agriculture Secy. Earl Butz.

He predicted a net increase of 350,000 tons in fertilizer sales—a 750,000-ton boost on the 20 million acres slated for the conservation reserve program, minus a 400,000-ton reduction resulting from the crop acreage cutbacks. Butz figures that limits on lands for crop use will cut fertilizer sales 930,000 tons, but that the industry will regain 530,000 tons as farmers turn to heavier fertilization.

» No surprise bids on the butadiene plant at Louisville, Ky., were received by last week's bid deadline, only lease offers from Union Carbide and Publicker—the firms that bid for the butadiene-fromalcohol unit in past go-rounds. Bets still favor rejection of both bids and a push for new laws authorizing plant disposal—with fewer restrictions.

» An immediate freight rate hike of about 7%

may be sought by Eastern and Western railroads. They're planning to seek the "quickie" boost from the Interstate Commerce Commission as a temporary measure pending a ruling on the permanent 15% increase already requested from ICC. Action on the latter has been put off until next January. Railroads say they'll need a rate boost to offset higher wage costs.

Best guess is they'll file for the increase as soon as new labor contracts are signed this month. Other lines may also join in the appeal.

Demothballing of 30 Liberty ships got preliminary o.k. from the Federal Maritime Board last week. The ships, from the government's reserve fleet, will be used by U. S. firms in hauling such foreign aid commodities as fertilizer. The move will help relieve the severe shortage of this type of tonnage and prevent further skyrocketing of ship charter rates.

The Mideast crisis is almost sure to bring more requests for such relief from U. S. exporters.

Last week's action by FMB is probably just the start. You can expect more mothballed ships to go back into service.

The mill would cost about \$6 million, would have a capacity of 700 tons/day of ore.

Gypsum Products: National Gypsum Co. will build two gypsum products plants in the Great Lakes area, and begin development operations of a 75-million-ton northern Michigan gypsum deposit. Total cost: \$19 million. The company also said negotiations for plant sites at Waukegan, Ill., and Lorain, O., are nearly completed.

COMPANIES

National Starch Products has purchased the outstanding capital stock of Granite Board, Inc., a manufacturer of wood-particle board.

Cosden Petroleum Corp. will make a public offering of 352,000 shares of \$1 par common stock. Proceeds will be used to acquire the outstanding capital stock of Col-Tex Refining Co., which is currently owned by Standard Oil of California and Anderson-Prichard Oil Corp.

Union Chemical & Materials Corp. common stock—in the amount of 125,000 shares—will be sold by the Clint Murchison interests to a subsidiary of New York Water Service Corp., which has been promised 6% dividends on its investment. The sale will reduce the Murchison holdings to 200,000 shares, or about 18% of outstanding stock. At the same time, the Murchisons declared that the 200,000-share public offering originally planned has been permanently withdrawn.

Stock Dividends: Following in Rohm & Haas' footsteps (CW Business Newsletter, Nov. 3), Allied Chemical lowered its stock dividend from last year's 5% to 3%. On the other hand, Stauffer Chemical declared a 2% stock dividend. It made no such distribution last year.

National Research Corp. has sold its interest in Vacuum Metals Corp. to Crucible Steel Co., which formerly held it jointly with NRC. Crucible gave National 12,108 shares of its common stock plus \$25,000 in cash.

FOREIGN

Glycol/Britain: Imperial Chemical Industries will build a second ethylene glycol plant at its Wilton works in North Yorkshire. Scheduled to go onstream early in 1959, the new unit will boost ethylene glycol production at Wilton to 32 million lbs./year.

Polyethylene/Japan: The Furukawa Electric Co. has just formed a subsidiary capitalized at \$830,000 that will produce polyethylene and acrylic fiber. The new firm, called Furukawa Industrial Co., will complete a plant in '57 with a rated capacity of 20 million lbs./year of polyethylene. Standard Oil of Indiana's polymerization process will be used.



WIDE WORLD

Kudos on Kinetics

International honors in chemistry last week went to Russian chemist Nikolai Semenov (left) and Britisher Sir Cyril Hinshelwood, who were jointly awarded the 1956 Nobel Prize in Chemistry.

Citations called attention to the scientists' work in studying kinetics of chemical reactions.

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powder...



Even trace impurities could irritate his tender skin—no wonder so many baby powders are made with pure Metasap stearates . . . dependably the cleanest stearates made!

This trusted purity helps guard product quality in many other industries too — in textiles, foods, recordings, greases — where even a few tiny specks of foreign material might harm the reputation and performance of the product.

For at Metasap, our primary aim is to turn out the cleanest stearates made anywhere in the world! Fine modern equipment is backed up at Metasap by the most thorough series of fine screens, magnetic traps and filters to be found in the industry. (We even carefully filter the air.) So depend on this — for stearates of supreme uniformity and quality, come to Metasap. Our technical service department will gladly advise and assist you.



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Some industries served by Metasap

PAINT makers solve pigment suspension problems with Metasap Stearates, producing primers and sanding sealers that have excellent filling qualities.

LACQUER AND VARNISH makers use Metasap Stearates to assure efficient flatting, and to obtain better finishes.

PLASTICS molders use Metasap Calcium, Zinc, and Barium Stearates to improve internal lubrication, which assures superior preforms, better finished products, and longer mold life.

RUBBER processors use Metasap Zinc and Magnesium Stearates to lubricate molds and prevent uncured stock from sticking.

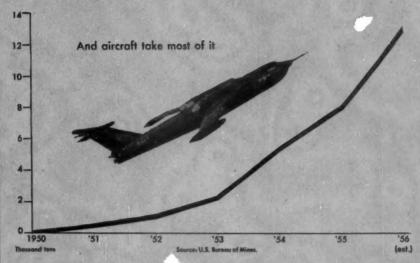
LUBRICANTS—Grease makers use Metasap Stearates because these outstanding soaps afford a wide range of quality bases that help producers to meet any grease specifications.

PAPER, Textiles, Cosmetics, Food Processing, Pharmaceuticals, and many other industries call upon Metasap Stearates to perform important services,

Charting Business

CHEMICAL WEEK November 10, 1956

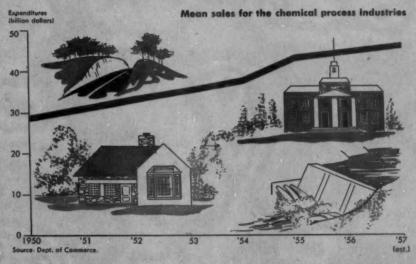
Titanium Output Soars 140% in Two Years...



SKYROCKETING demands for titanium sponge—especially for military aircraft—will push this year's total titanium production 60% higher than in '55; sponge output last year—about 8,000 tons—was 40% over '54's production.

Estimated mill product production of this light-weight metal hit 1,900 tons in '55, with year-end output approximating a 2,500-tons/year rate. Meanwhile, ingot manufacture reached a 6,000-tons/year rate by the end of '55.

Growing Building and Construction Expenditures...



B UILDING and construction expenditures will break all records in '56, and will climb still higher. Some reasons: prosperous outlook for business, more available funds for investments, steppedup government as well as private construction, increasing population. The building industry—rivaled mainly by the

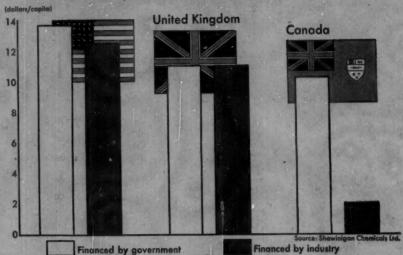
automotive industry as a consumer of raw materials—will use these estimated amounts of chemical products in '56: 1 billion lbs. of explosives, more than 5 billion lbs. of plastics, 60% of all paint produced, 80% of all glass, 10,000 tons of gypsum, 1,300 tons of lime, and more than 300,000 bbls. of cement.

Charting Business

(Continued)

Governments Finance Most Research...

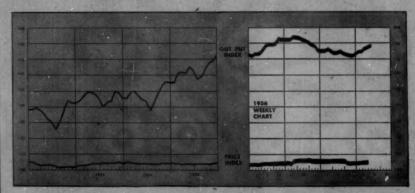
And last year, U.S. led in dollars spent per capita



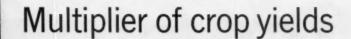
OVERNMENT sponsorship of research has increased steadily during the past years. Today, in both the U.S. and the U.K., the government absorbs about 50% of the nation's total research expenditures. In striking contrast, the

Canadian government foots more than 83% of the Dominion's total research bill. One reason: Canada's sparse population limits the size of consumer markets—hence relatively small industries can't support extensive research.

BUSINESS INDICATORS



WEEKLY	Latest	Preceding	Year
	Week	Week	Ago
Chemical Week Output Index (1947-49=100)	182.3	180.8	168.7
	106.2	106.0	104.7
(Standard & Poor's Corp.)	438.4	441.5	445.4
MONTHLY Exports		Imports	V



Anhydrous ammonia offers a rapid and economical means of raising the nitrogen level of the soil. Corn growers, for example, report that for each dollar's worth of anhydrous ammonia (properly applied), they can expect a yield of as much as five extra bushels of corn.

The Atlantic Refining Company is a prime source of supply for many companies using anhydrous ammonia. For detailed information on this and other Atlantic petrochemicals, write the Atlantic office nearest you. The Atlantic Refining Company, 260 South Broad Street, Philadelphia 1, Penna.

ATLANTIC

Philadelphia, Providence, Charlotte, Chicago

In the West: L. H. Butcher Co.

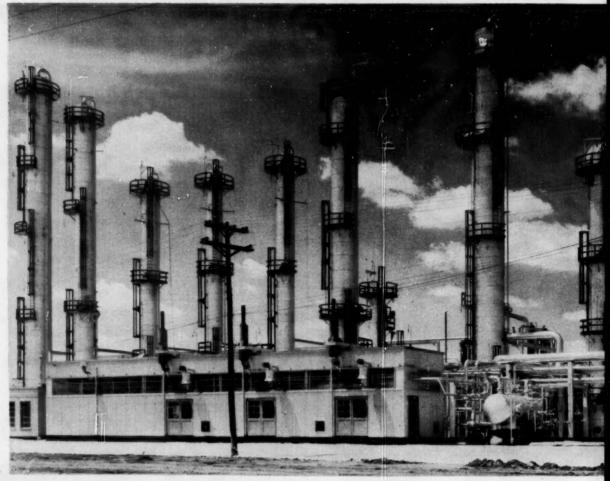
In Canada: Naugatuck Chemicals Division of Dominion Rubber Company, Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium



PROCON BUILDS UOP REXFORMING UNIT FOR COSDEN IN RECORD TIME

Another important construction achievement for Procon



New Rexforming unit at Cosden just after going on stream



Ray Tollett, President (center) and Dan Krausse, Vice President, Manufacturing (left) of Cosden congratulate Martin McReynolds, Field Construction Superintendent for Procon



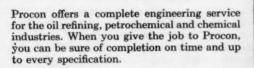
This control room directs the operation of the Rexforming unit



The heart of the Rexforming unit, the Reactors

Some months ago, Cosden Petroleum Corporation, Big Spring, Texas, gave Procon the responsibility of building their new Rexforming refining unit. Cosden's requirements for the construction specified completion "at the earliest possible time". Procon finished this project, the first Rexforming unit anywhere in the world to be built wholly from the ground up, in approximately six months. It is an outstanding example of Procon's ability to meet the most exacting construction requirements on time and right up to every specification.





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WORLD-WIDE CONSTRUCTION FOR THE PETROLEUM, PETROCHEMICAL, AND CHEMICAL INDUSTRIES



Site 30 days after ground breaking

Ground was broken for the new Rexforming unit on January 18, 1956 and completion was promised in approximately six months. In order to meet this time requirement, Procon engineers realized it was necessary to break away from routine methods and use every time-saving method possible consistent with good construction practice. Accordingly, it was decided to proceed as far as possible with the basic construction even before the major columns could be finished and placed in position. This presented a delicate problem since, as the columns were completed and delivered, it was necessary to move them into position with the rest of the construction being ahead of the usual status for their easy installation. This was handled without flaw by the Procon construction crew on the job and the new unit went on stream just 190 days after ground had been broken.



Column just fits in space between partly completed construction

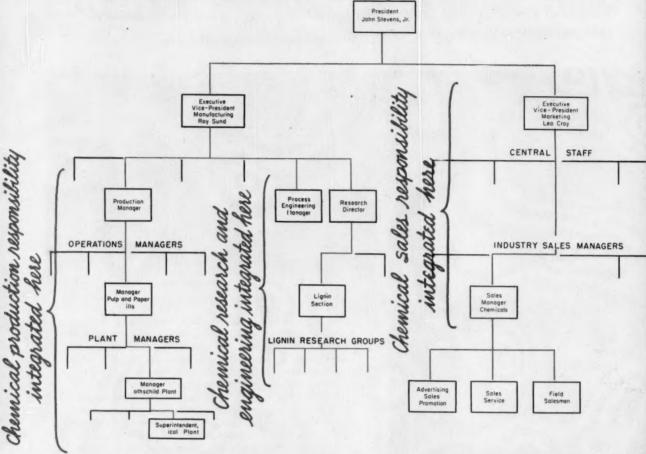


Column is carefully maneuvered into place

One of the principal problems was the positioning of the extractor column, RXV10, the largest in the unit. It had to be fitted carefully into the half-completed construction and maneuvering it into position in a space that permitted only a few inches leeway was an unusually competent construction accomplishment.

ADMINISTRATION

MARATHON CORPORATION



Silvichemical Managers Switch Systems

In management methods as well as in matters gastronomical, one man's meat is another man's poison. Thus it is that two major producers of forest products have each switched to the other's former organizational system for handling their silvichemical operations.

Marathon Corp. (Rothschild, Wis.)—a pioneer in the search for processes to permit utilization of the chemical components of wood—had a relatively independent chemical products organization for the better part of two decades; now it is completing an integration of chemical research, production, sales and accounting into the corresponding functional sections of the entire company (see chart, above).

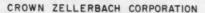
Conversely, Crown Zellerbach

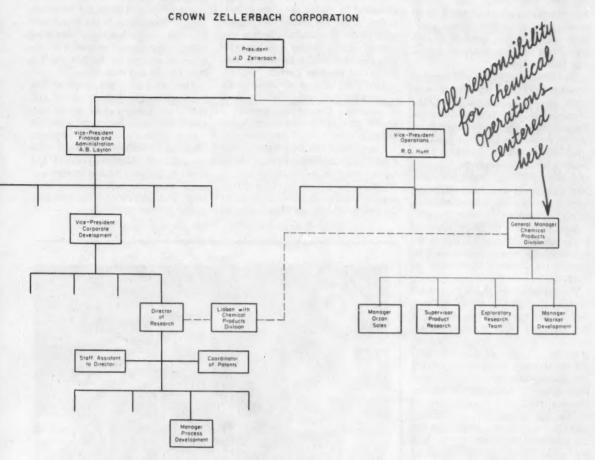
Corp. (San Francisco) started out in the silvichemical field with its chemical activities split among the over-all line and staff departments on a functional basis; eight years later (in 1955), it set up a Chemical Products Division as an autonomous unit that keeps its own books, makes up its own budget, runs its own operation.

No Chemical De-emphasis: Paradoxically enough, both of these seemingly opposite moves were designed to put more stress on the importance of silvichemicals within the two companies. To a considerable extent, the paradox can be explained by differences in the companies themselves and by the individuals who have built up the chemical side of each concern's business.

For one thing, Crown Zellerbach is much larger than Marathon; net sales last year were \$414 million and \$135 million, respectively. Establishment of the separate unit for chemical products helps make sure that this operation—formerly broken down into its functional parts—won't be lost sight of at Crown Zellerbach.

Another Factor: Relative to their total sales, Marathon is in the chemical business on a broader and deeper basis than Crown Zellerbach. The Wisconsin concern — aside from its long and deep-seated interest in lignosulfonates—also turns out for its own use such chemical products as chlorine, caustic soda, sodium sulfide, hydrochloric acid, printing inks and refined waxes. This emphasis on chem-





icals has resulted in Marathon's promoting some of its chemical division "alumni" into positions of broad corporate responsibilities.

As of now, Crown Zeilerbach is not planning to go into chlorine-andcaustic production; its chemical interests center on two focal points: production and marketing of lignosulfonates by the year-old Chemical Products Division at Camas, Ore., and recovery and sale of tall oil and turpentine by CZ's recently acquired Gaylord Container Division Louisiana.

Tough Selling Job: When Marathon built in 1936 what it terms the first commercial plant for production of wood chemicals, the operation had its own general manager and its own research, production, sales and accounting staffs. Because its products were an entirely new type of surfaceactive chemicals, introducing them to industry was no easy task. This is cited as the major reason for using-at that time-the relatively autonomous divisional type of organization.

Here the record speaks for itself. Sparked by former Vice-President Allen Abrams (now retired), R. C. Wilcox (then assistant division manager) and J. R. Salvesen (who headed division's research program), Marathon's Chemical Division demonstrated that it could operate as a profit-making segment of the company.

But when it became apparent that wood chemicals would continue to be a big part of its business, Marathon began a planned and systematic integration of its wood chemicals operations into the over-all corporate structure. Wilcox became manager of central process engineering for the entire company; Salvesen was named director of Marathon's central research department.

Sales Less Integrated: Of the three original operating departments of Marathon's former Chemical Division, the sales department is probably the least integrated. Although this unit is directly responsible to the corporation's Marketing Division, the chemical sales section still plans and carries out its own advertising and promotional programs. This is because top management feels that the marketing of chemicals-whatever their derivation-presents sales problems of a considerably different nature from those encountered with Marathon's food packaging products.

For that very same reason, Crown Zellerbach's Industrial Products Division-set up in 1952 to market CZ's silvichemicals—quickly turned to Van Waters & Rogers, Inc. (Seattle), one of the largest chemical distributors in the West (CW, Aug. 18, p. 92). Working with Van Waters, that division soon developed a host of uses for new wood chemicals as they became available: as stabilizers, binders, dispersants, additives, sequestering agents, and intermediates.

As the number of CZ silvichemical products multiplied, the old arrangement began to appear unwieldy. Management felt that a Chemical Products Division-consolidating research, production and sales functions -would be able to achieve a basic position in silvichemicals more quickly and efficiently than under the splitresponsibility system. With increasing sales and production volume and with expanding markets, the men in charge found that it was no longer practical to operate the silvichemical end of the business with research at Camas, production at Lebanon, and sales at Portland.

Researchers at the Helm: Accordingly, CZ established its Chemical Products Division with Monty Hearon as manager. His office at Camas is adjacent to that of Wendell Moyer, corporate director of research, who led the company's eight-year research and development effort on silvichemicals prior to establishment of the chemical products division.

"My No. 1 responsibility," Hearon told CW, "is to show a profit on chemical products. This year—for the first time—we have enough products, enough diversification and enough markets to support a completely independent operation. In five years, we expect our gross chemical sales will top \$3 million/year on current products alone, not counting those that are now undergoing development, those in the laboratory stage, or just ideas."

As "merchants of trees," both CZ and Marathon are interested in maximum utilization of the tree; this is coming to mean even more intensive production of chemicals from bark, wood, and solid and liquid wastes. And though the two firms are tackling this task with contrasting organizational setups, there's a close parallel in one important respect: while Marathon's silvichemical managers are working under different departments, they're all based at Rothschild where they "keep in touch" just about as intimately as do their CZ counterparts in the unified silvichemical division of Camas.

Lesson in Capitalism

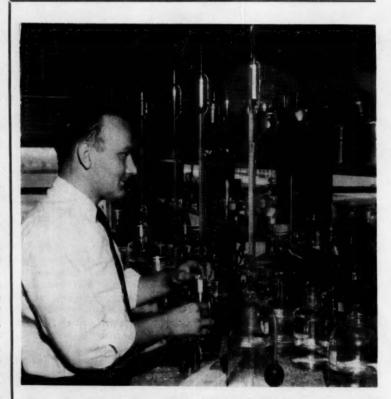
Du Pont, which several years ago pioneered in getting the story of capitalism to the U.S. public with its program "How Our Business System Operates," now is taking a big step to help convey a similar message to people behind the Iron Curtain.

The U.S. Information Agency has selected Du Pont to help tell the story of "People's Capitalism" through a special series of Voice of America programs in more than 30 languages.

Voices from 44 Countries: In the most comprehensive coverage of a special event in its history, Voice of America sent a team of nearly 50 reporters, announcers and technicians to Du Pont's Wilmington headquarters to

interview company scientists, executives and union representatives who emigrated from 44 foreign countries and who speak fluently the languages of their homelands. In the broadcasts, recorded native-language interviews will be supplemented by special roundtable discussions in English by Du Pont experts and executives.

The programs will explain Du Pont's organization and history, and outline the widespread sharing of benefits under the American economic system. Programs will cover employee relations, ownership, community relations, foreign relations, products and research. Subjects of the foreign-language interviews will permit a wide range of discussion with Du Pont personnel.



Promoting Careers in Science

ANOTHER chemical process firm taking steps to make careers in science more attractive to high school students is Armstrong Cork Co. (Lancaster, Pa), which is already making plans for its 1957 industry-teacher summer program. It will hire

two high school teachers to work through the summer. Last summer, Charles Eshleman, Jr., of Lancaster, and Howard Hergenrother (above), of Landisville, Pa., worked in acoustics research and the chemistry division, respectively.

The Use of V-C Phosphites as

Color Inhibitors

If you have a process that involves a color problem, it will pay you to evaluate V-C Phosphites. They have been shown to improve color in esterification reactions, polymerization reactions and high temperature processing of fats and oils. In polymers, such as polyvinyl chloride, ethyl cellulose and GR-S rubber, V-C Phosphites have given outstanding results.

V-C Phosphites are mild reducing agents and acid acceptors. They complex with metal salts. These properties, together with high solvency, relatively low vapor pressures, low toxicities and inherent flame retardancy, have made V-C Phosphites extremely attractive to the chemical processor. Here are three V-C Phosphites which may be interesting to you:

V-C PHOSPHITES	BOILING POINT	SPECIFIC GRAVITY 20°/4°C	FLASH POINT
Tris (2-chloroethyl) Phosphite	119°C/0.15 mm	1.353	375°F
Triisooctyl Phosphite	161-4°C/0.3 mm	0.891	385°F
2-Ethylhexyl Octylphenyl Phosphite	above 160°C/0.3 mm	0.935-0.950	385-390°F

Why not investigate these and other V-C Phosphites right now while you are thinking about it. Samples and additional information are yours for the asking. Just write us on your company letterhead, describing your problem. We will reply promptly or send one of our technical men to see you if you so desire.

THE V-C LINE

Phosphorus, Elemental
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Dimethyl hydrogen phosphite

Diethyl hydrogen phosphite Dibutyl hydrogen phosphite Bis(2-ethylhexyl) hydrogen phosphite Trimethyl phosphite† Triethyl phosphite† Triisopropyl phosphite†

Trisopropyl phosphite†
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Trisooctyl phosphite†
Tris(2-ethylhexyl) phosphite†
Tris(2-chloroethyl) phosphite
2-Ethylhexyl

octylphenyl phosphite Diethyl ethylphosphonate Dibutyl butylphosphonate Bis(2-ethylhexyl)

2-ethylhexylphosphonate
0,0,0-Triethyl phosphorothioate
0,0,0-Tributyl phosphorothioate
0,0,0-Triisooctyl phosphorothioate
and other organophosphorus
compounds and phosphatic
specialties.

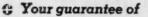
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Virginia-Carolina Chemical Corporation produces—V-C Chemicals ... V-C Fertilizers and V-C Superphosphates ... V-C Phosphate Rock ... Vicara*, Zycon*, Wavecrepe* and other zein fibers ... V-C Multiwall Paper and Textile Bags ... V-C Cleansers ... V-C Nemacides.

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3

3

1

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ADMINISTRATION



DEFENDANT DARDI: Stockholders charge illegal transactions.

LEGAL

Stock Profits Suit: A United Dye and Chemical Corp. (New York) stockholder, Louis Feirstein, has filed suit in federal district court at New York charging executives of the company with illegal stock transactions.

The suit charges United Dye's President Virgil Dardi and members of the board of directors with purchasing stock in the company in violation of provisions of the Securities & Exchange Commission Act of 1934. The suit also asserts that profits from the subsequent sale of these stocks belong to the company.

The complaint alleges that between July 5 and July 18, 1955, Dardi purchased 40,000 shares, and that on July 27, '56, he sold 18,000 shares at an unknown profit. These and other purchases were allegedly made by Dardi without informing SEC. Feirstein—who charges other stock transactions netted Dardi \$18,000—seeks an accounting of stock purchases and money realized.

More About PE: Reichhold Chemicals, Inc. (White Plains, N. Y.) has gained the right—for the time being at least—to continue using its present process for manufacture of pentaerythritol (PE). This right came with Chancellor Collins Seitz's refusal in a Wilmington, Del., chancery court to place a blanket restriction on Reichhold as requested by Delaware Chemicals, Inc. (Wilmington).

Delaware Chemicals' request was part of a \$1-million damage suit filed Feb. 24, 1955, charging that Reichhold violated a contract when it began producing pentaerythritol after learning the process from the plaintiff. Since then, Chancellor Seitz has:

 Dismissed a \$2.2-million Reichhold counterclaim.

• Called for the exchange of sealed answers to questions concerning the process (CW, July 28, p. 39).

 Denied Reichhold's motion for a separate trial on one of the issues in the case.

 Called for reciprocal inspection of both companies' processes "subject to safeguards against unnecessary disclosure."

In addition to refusing to allow the blanket restriction, Chancellor Seitz turned down two Reichhold plans for carrying out the reciprocal inspection of the processes. The two companies so far have been unable to agree on safeguards for the inspections.

LABOR

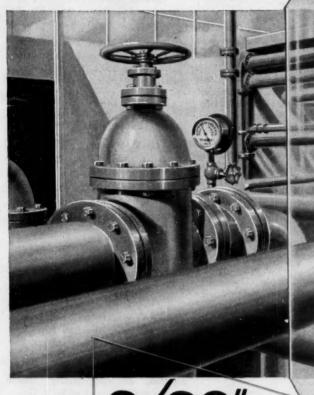
Strikeless Settlements: Collective bargaining in the chemical process industries appeared to be on a smooth course as of last week, with long-term contracts still in vogue. Among latest settlements:

• At Anniston, Ala., a two-year agreement between Monsanto and International Chemical Workers Union (AFL-CIO), with an 11¢/hour wage increase effective now and an additional 8¢ boost scheduled for the anniversary date next year.

 At Niagara Falls, Ont., a oneyear pact between North American Cyanamid and ICWU, providing for wage increases ranging from 7¢ to 12¢/hour and more liberal seniority provisions.

• At Pittsburgh, a three-year, nostrike contract between Aluminum Co. of America and United Auto Workers (AFL-CIO) at four Alcoa plants, with new benefits totaling 46¢.

'Suds' for Standees: A company physician at San Francisco has proposed that factory workers who have to stand up throughout their work shifts be given free beer four times a day while on duty. The doctor said that blood circulation in the legs often becomes a problem for assembly line workers who are on their feet all day,





long life and lost life!

Corrosion has been sending billions of dollars worth of equipment to the junkyard. Yet in plant after plant, it has been wiped out by thin vinyl linings or coatings.

Made from Firestone EXON 900 Series resin, these linings have minimized corrosion wherever they are used. Mixtures of sulfuric, nitric and hydrofluoric acids . . . concentrations of caustic soda and chlorine . . . have been successfully handled.

Installation is quick, simple, economical. These linings constitute only one of several types of corrosion-fighting-protectives made effective by Firestone EXON research.

For example, dip-coating small and medium-sized parts with plastisol based on EXON 654 resin, produces protection that withstands active corrosives.

Lightweight structural rigids, flues, ducts, and tanks, of EXON 402A have been exposed to virulent acids and alkalies for years without trace of damage.

These are just some of the many resins in industry's most complete line of versatile vinyls. Another reason why industry looks to EXON for engineered answers to its needs.

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Firestone Plastics Company supplies the resins only... does not make the coatings or linings.

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It's true! And for this very reason an ever-growing number of manufacturers are turning to Espesol aromatic and aliphatic solvents. These famous solvents—products of Eastern States Chemical—are your assurance of consistently superior finished products.

QUALITY

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ADMINISTRATION

and that he has found that beer "facilitates circulation and heightens morale."

Puerto Rican Wages: For "mainland" plants covered by the Fair Labor Standards Act as amended last year, the federal minimum wage is \$1/hour; but in Puerto Rico—whose government is leaving no stone unturned in its quest for new industry—minimum wage rates are set on an industry-byindustry basis, following tripartite (government, employer and employee) consultations. After hearings last summer, Secretary of Labor James Mitchell posted these new minimum rates for various chemical process industry segments in the commonwealth:

- Fertilizer mixing, hormones, antibiotics, adrenalin and petroleum refining—\$1/hour.
- Drugs, medicines, bay oil, aromatic alcohol and toilet preparations —70¢/hour.
- Sulfuric acid, alkalis, chlorine, hydrochloride acid, anhydrous ammonia, ammonium sulfate, aluminum sulfate, fertilizer materials and other industrial inorganic chemicals—65¢/hour.
- Asphalt tile, linoleum, candles, fireworks, pyrotechnics, and other miscellaneous chemical and rubber products—80e/hour.

Bloody but Unbowed: Still under attack in the courts and "excommunicated" from AFL-CIO because of its allegedly Communist-influenced leadership, United Mine, Mill & Smelter Workers (Ind.) appears to be holding its own against other unions' raiding efforts. At its Denver headquarters, Mine-Mill is claiming victory over United Steelworkers (AFL-CIO) in Western nonferrous metals industries. Added to last July's triumph over the Steelworkers in an election at Anaconda, Mont., Mine-Mill recently scored two wins at other Anaconda Co. plants in Montana-one in Butte, the other in Great Falls. Total balloting in the three elections: Mine-Mill, 4,126; Steelworkers, 2,462.

Union Plugs Boss' Products: International Brotherhood of Pulp, Sulphite & Paper Mill Workers (AFL-CIO) is urging the public to patronize retail stores that offer free gift-wrap boxes to their customers. The union is irked that some department stores have started to charge 5-10¢ for such cartons.

KEY CHANGES

Mart C. Spiegel, to general sales manager, Los Angeles Soap Co. (Los Angeles).

Ronald R. Menti, to assistant general manager, Latex Fiber Industries, Inc. (Beaver Falls, N.Y.), subsidiary of U.S. Rubber Co. (New York).

William T. Yost, to chief chemist and manager, Research Laboratories, Booty Resineers, Inc. (Newark, O.).

Percy E. Landolt, to director and executive vice-president, Basic Atomics, Inc. (New York).

William W. Brown, to director of operational services, Merck Sharp & Dohme International Division, Merck & Co. (Rahway, N.J.).

Edward J. Massaglia, to president; Robert P. Barnett, to secretary; and John B. Capella, to treasurer; Thermaflow Chemical Corp., subsidiary of Atlas Powder Co. (Wilmington, Del.).

John T. Whitely, to executive vicepresident, Latin American Paper and Chemical Group; J. B. Harris, to general manager, territorial operations of the South American Group; and J. C. Duncan, to vice-president, South American Division; all of W. R. Grace & Co. (New York).

James O'Conner Brown, to vicepresident, Petro-Tex Chemical Corp. (Houston, Tex.).

O. Jay Myers, to vice-president in charge of the Foundry Division, Reichhold Chemicals, Inc. (White Plains, N.Y.).

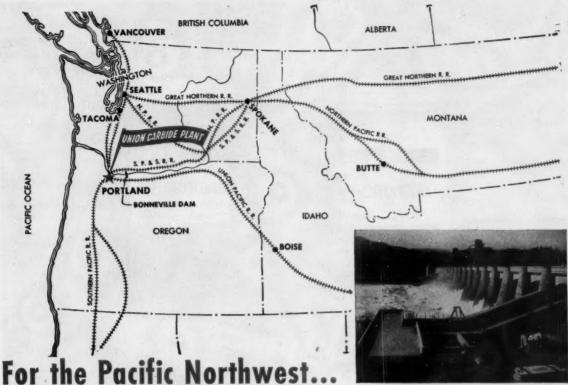
Peter P. Wojtul, to vice-president, Fibre Drum Division (Van Wert, O.), Continental Can Co. (New York).

Carl H. Hageman, to vice-president, industrial relations, Union Carbide and Carbon (New York).

David Stern, to assistant manager, Whittier Research Laboratory (Whittier, Calif.), American Potash & Chemical Corp. (Los Angeles).

KUDOS

To Glenn Theodore Seaborg, director of chemical research, Radiation Laboratory, University of California (Berkeley), the 1957 Perkin Medal of the American Section, Society of Chemical Industry.



Volume Acetylene at Portland

Acetylene—an important raw material for chemical synthesis—can be supplied in large volumes at Portland, Oregon. If you are planning a new chemical plant in the Northwest, and will use acetylene as a raw material, consider the advantages of having acetylene delivered directly by pipe line. No generation equipment is needed at your plant.

Portland offers these advantages:

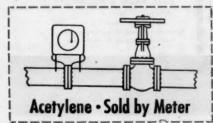
- 1. Desirable Plant Sites. Within piping distance of Linde volume acetylene are many choice locations for your new plant in the Portland area.
- 2. Years of Experience. Acetylene has been produced from Union Carbide since 1898, and the many years of experience acquired in generating and handling acetylene are available to you at Portland.
- 3. Favorable Transportation. Plants located in Portland enjoy strategic transportation advantages. Five

major railroads and a number of motor-truck lines serve the area. Portland also has the advantage of a deep-water harbor. Shipment of your products can be made by water between Portland and West Coast cities in the United States and Canada.

4. Power at Low Rates. Hydro-electric power can be purchased at economical rates. Bonneville Dam (pictured above) is nearby.

Union Carride is also produced at Ashtabula, Ohio; Niagara Falls, New York; and Sault Ste. Marie, Michigan. Bulk shipments to chemical users can be made from any of these plants, including Portland. Drum stocks for industrial users are maintained at 111 warehouses throughout the United States.

Whatever your plans or requirements, you are invited to telephone or write to LINDE'S CARBIDE-ACETYLENE DEPARTMENT for technical and sales information.



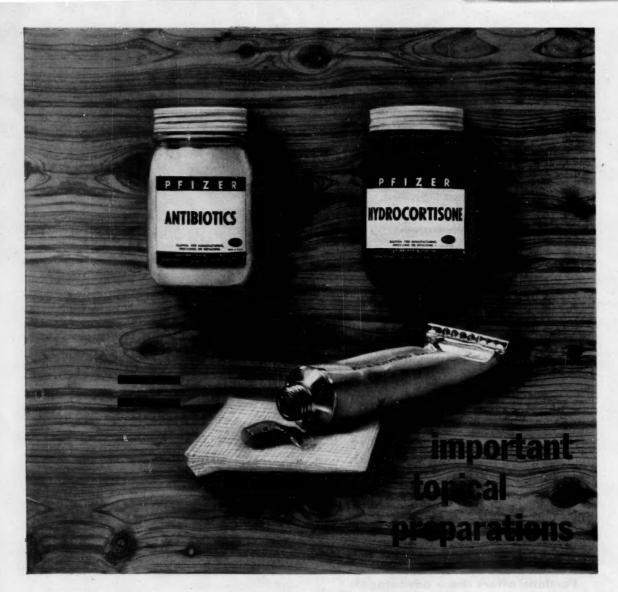
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• Numerous clinical reports have shown that dramatic results are obtained when hydrocortisone is used in combination with antibiotics. In topical preparations particularly, hydrocortisone has proved its *safety* and its *effectiveness* as a potent anti-inflammatory agent at the tissue level.

Whether you're formulating an ointment, lotion, aqueous suspension or other dosage form, you'll find addition of Pfizer Hydrocortisone increases its anti-inflammatory and anti-pruritic effectiveness. Consider the use of this important steroid in

your new specialties...or to increase the activity of your present formulations.

You can order PFIZER BULK HYDROCORTISONE as the alcohol or the acetate, in either regular or micronized form. If you would like more information on the clinical or pharmaceutical aspects of this important steroid, write to Pfizer Chemical Sales Division for Technical Bulletins 75 (Hydrocortisone—Clinical Aspects) and 76 (Hydrocortisone—Pharmaceutical Aspects).

Manufacturing Chemists for Over 100 Years

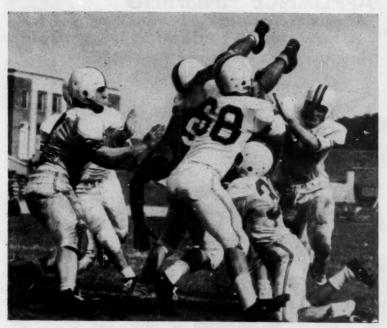


CHAS. PFIZER & CO., INC. Chemical Sales Division

630 Flushing Ave., Brooklyn 6, Pl. Y. Franch Offices: Chicago, Ill.; San Francisco, Calif.; Vernon, Calif.; Atlanto, Ga.; Dallas, Texes



SPECIALTIES



New Rubs May Upsel* The Liniment Line-up

Football is as rough as it looks. Proof of this-and the specialties opportunity it presents-is underscored by the fact that a typical pro team like the New York Giants uses 5 lbs. of analgesic balm during a game. Although professional sports make up a relatively small part of the market for external analgesics,† they are one of the factors that explain why fall and winter are big seasons for body rubs.

Not only does cold, damp weather in itself set muscles to hurting, but it also moves people to peaks of activity: rough and tumble fall and winter sports plus strenuous cold-weather household chores.

Right now, analgesic balm and liniment makers are preparing for the rush, each hoping to increase his share of the \$73.2-million market-or at least to hold his own against heavily promoted newcomers. Both are watching the twin entries of Rexall Drug Co. (Los Angeles): Thru, sold by

Rexall stores, and Intracel (CW, Nov. 3, p. 140), the same product as that sold by Rexall's subsidiary VCA laboratories to nonaffiliated outlets. Both products are being launched with tremendous advertising budgets, and 15¢ commission to Rexall sales people for each sale of Thru.

Competitors are aware of what a big promotion can do to the field. They remember what happened when American Home Products' (New York) Whitehall Pharmacal Division threw two new products onto the market with a big splash a few years ago. One, Heet, is now the top-selling liquid-type, and the other, Infrarub, is the No. 2 cream-type balm. It is second only to the powerful dominator of the entire field, Bengué, Inc.'s (Union City, N.J.) Balm Ben-Gay, itself a heavy advertiser. (Third-place cream is probably Mentholatum Rub, made by Mentholatum Co., Buffalo, N.Y.)

What adds uncertainty to forecasting is the fact that, although the AHP products are both only variations of older brands, the Rexall products are quite different. Most liniments and balms are counterirritants—usually employing methyl salicylate to dilate blood vessels, bring blood into muscles and the surface of the skin where the lack of blood has brought pain. Thru and Intracel, on the other hand, have no such counterirritant action, simply penetrate the skin (using a "highly secret lipophilic agent") with salicylamide and benzocaine. The salicylamide has a pain-relieving effect similar to that of aspirin, and benzocaine is a local anesthetic.

Cream on Top: The new Rexall formulation is a liquid, a form that has been slowly but steadily slipping in popularity over the years. Last year, sale of salves, ointments and balms totaled \$29 million of the market, whereas liniments and other liquids brought only \$18 million (rubbing alcohol sales were \$20 million).

Trailing Heet, the next two best-selling liquids are Absorbine, Jr. (W. F. Young, Inc., Springfield, Mass.) ‡, and Sloan's Liniment (Standard Labs, New York). All of these products receive strong competition from localbrand liniments, many made by the druggists themselves. Nationally sold brands have forged ahead in recent years until they now account for the bulk of the business, thanks mainly to the growth of supermarkets and other self-service outlets (64% of the external analgesics are now sold through drugstores).

The more immediate problem, however, and the one uppermost in the body-rub makers' minds, is the new Rexall product. Although each speaks kindly of old competitors, they vie with each other to point out why Thru and Intracel won't catch on ("Salicylamide doesn't do too much good taken orally; it'll be even weaker going through the skin"; "\$1.49 for 2 oz. is too high—they need that just to pay for the advertising.") **

On the other hand, body-rub makers can't help but remember that the American Home Products brands did more than upset rankings. The burst of promotion made the public more rub-conscious, boosted the over-all market. It looks as if the market is in for another spurt.

^{*}Upset illustrated: Syracuse 26; Maryland 12. †Most professional athletes, trainers, school paches buy from small specialty houses like Andy otshaw (Chicago), Cramer Chemical Co. (Gard-er, Kan.), or mix their own.

[‡]Absorbine (Sr.), from which Absorbine, Jr., was developed, is a similar product for horses, much used at race tracks and shows.

**Although it isn't too much higher than the 70-80¢ for 1½ or 1½ oz. paid for other external analgesics.



FOR BEADS THAT ARE FREE-FLOWING IN ALL VISCOSITIES

SPECIFY

VINAC

POLYVINYL ACETATE BEADS

(Grades 87, 815, 825, 8100 and 8800)

Tiny, round, transparent VINAC Polyvinyl Acetate BEADS are indeed "jewels" when it comes to adding top quality to a long roster of widely-

Free-flowing Vinac Beads are perfect spheres even in lower viscosities and minute sizes . . . do not lump together.

Uses for these low-cost Vinac Beads include-

ADHESIVES: Hot melts, heat seal and solvent types quickly bind porous and non-porous ma-terials of all kinds.

COATINGS: Form protective films of great clarity and high gloss on paper, plastics, ceramics and metals. Good water, oil and grease resistance; mild alkali and acid resistance

INKS: Give body and adhesion to lacquers, paints and inks applied to a variety of surfaces.

Free sample of Vinac Polyvinyl Acetate Beads on request. Also Colton technical assistance, data sheets, suggested formulations. Address Depart-

COLTON CHEMICAL



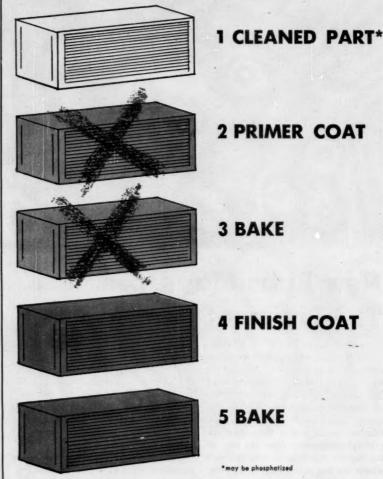
COMPANY

A Division of Air Reduction Company, Inc. 1747 Chester Avenue © Cieveland 14, Ohio Sales Offices and Warehouse Facilities Throughout U.S. Expert: Airco Company International, New York 17, N. Y.

SPECIALTIES

APPLIANCE FINISHING

... new paints containing thermosetting acrylic resins cut two steps



Shortcut to Color

Pittsburgh Plate Glass Co. last week took the lid off a can of paint that could color the whole baking-enamel picture (CW Technical Newsletter, Nov. 3). The new paint, called Duracron, is based on what Pittsburgh terms "entirely new and unique" thermosetting resins, and is claimed to offer a raft of advantages, including hardness and toughness approaching that of porcelain, adherence so good that a prime coat is unnecessary in many cases, and resistance to aging, chemicals and discoloration.

These advantages, Pittsburgh says, have been gained without prohibitive cost, although the paints are a little more expensive, per gallon, than the conventional paints (although the firm points out that since a primer coat is eliminated in many cases, the use cost is down), and they must be baked at slightly higher-than-usual temperatures (about 350 F.).

Bake-Set Novelty: Paints built around acrylics are no longer novelties - fast-drying, water-base emulsion paints have achieved a prominent



AS PARTNERS IN

YOUR PROGRESS . . .

ACKAGING - is a plus factor!

The painstaking care with which GLC carbon and graphite products are prepared for shipment is typical of the interest taken by our personnel—all along the line—to achieve unsurpassed quality.

The earnestness with which our people tackle their jobs—whether the task be large or small—is a substantial plus factor in the dependability of GLC electrodes, anodes, carbon brick and mold stock.

The high degree of integration between discoveries in our research laboratories, refinements in processing raw materials, and improved manufacturing techniques is further assurance of excellent product performance.

ELECTRODE



Great Lakes Carbon Corporation

GRAPHITE ELECTRODES, ANODES, MOLDS and SPECIALTIES

ADMINISTRATIVE OFFICE: 18 East 48th Street, New York 17, N.Y. PLANTS: Niagara Falls, N.Y., Morganton, N. C. OTHER OFFICES: Niagara Falls, N.Y., Oak Park, Ill., Pittsburgh, Pa. SALES AGENTS: J. B. Hayes Company, Birmingham, Ala., George O. O'Hara, Wilmington, Cal. SALES AGENTS IN OTHER COUNTRIES: Great Northern Carbon & Chemical Co., Ltd., Montreal, Canada; Great Eastern Carbon & Chemical Co., Inc., Chiyoda-Ku, Tokyo, Japan

November 10, 1956 • Chemical Week

43



Dredge Mining in South Carolina

A New Look for Rare Earths!

This dredging operation signals a new supply of rare earths and heavy minerals produced for American industry from domestic ores.

HEAVY MINERALS Co., a new firm with a new symbol of quality, is mining large deposits of source materials for thorium, titanium, zirconium and the rare earths in the Southeastern United States. It will be the first major operation based on domestic ores, domestic processing, and domestic distribution.

In December one of the world's most modern plants for the separation and purification of rare earths and rare earth compounds will go on stream at Chattanooga. This new multi-million dollar plant will produce in quantity the highest quality rare earth chlorides, oxides and similar products for the chemical, metallurgical, ceramics, glass and other industries.

HEAVY MINERALS Co. now has domestic ore sources to assure continuity of supply and consistency of ore. It sponsors an aggressive research and development program and makes its technical services available to industry.



HEAVY MINERALS Co., is a subsidiary of CRANE Co., VITRO CORPORATION OF AMERICA, and PECHINEY, the French chemicals group.

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SPECIALTIES

market position in the past three years, and—in the past 10 months—acrylic lacquers have taken on new significance in the auto finishing field. But both coatings are based on thermoplastic acrylic resins (will soften when heated), rather than on the thermosetting ones used for Duracrons.

So far, the two firms best known in acrylics have not exploited thermosetting acrylic resins for paint or other uses, and though both claim familiarity with them, neither indicates that it will offer such a resin (or paint) soon.

Pittsburgh makes its own resins from monomer available from either Du Pont or Rohm & Haas, and has applied for patents on its bake-set materials. Paints formulated around the new resins are ready to apply (no hardener is added by user), are conventionally thinned (solvents of the toluol-xylene type), and can be applied with standard spray equipment. (Right now, the Pittsburgh resins seem slated strictly for coatings, not for molding or sheet applications commonly associated with the thermoplastic acrylics.)

Appliance Applications: Pittsburgh, which was one of the first firms to offer the extra-hard, high-bake melamine-modified alkyds to the auto finish trade, is concentrating on the appliance field with its new Duracrons. Already tested on the production line is their application to air-conditioner housings, refrigerators, home laundry equipment. Exceptional adherence to metal and to primers (and touching-up can be done without the careful roughening required with many enamels), resistance to high temperatures, staining, chipping, salt water, grease, chemicals and marring, coupled with flexibility and hardness, are pluses claimed to make the Duracrons well suited to those uses.

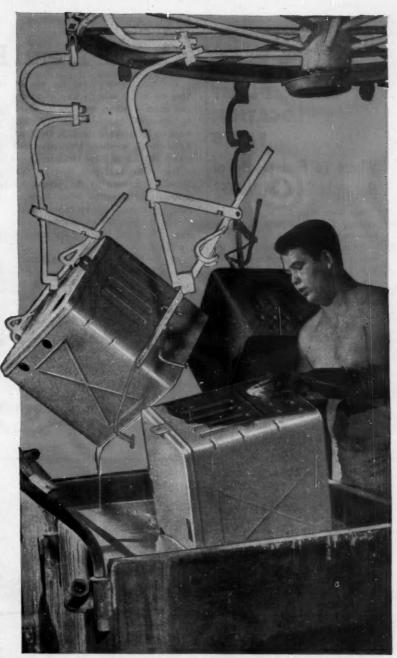
Although outside weathering tests are under way, and results so far are very promising, Pittsburgh is not reaching now for such markets as application to metal building panels or automobiles.

Credit for the new development goes to a research team at Pittsburgh's Springdale, Pa., labs—Henry Vogel headed the group; he was aided by Roger Christenson, Stewart Gloyer and Harry Biddle. The paint is now in commercial production at the firm's Milwaukee and Newark plants, and is available in commercial quantities in a full range of colors.

MOLY LOWERS SURFACE TENSION

Adherence of ceramic coatings to steel can be promoted by lowering surface tension in the silicate melt. Small amounts of molybdenum compounds will greatly reduce surface tension, improve wetting and spreading power. Result—smoother, thinner, more adherent enamels and glazes.

Moly in the melt has other advantages. It permits smelting at lower temperatures. It makes possible a one-coat gray enamel, produced with a single firing. It helps control shape in special forms of glass with high surface/volume ratios.



Perhaps versatile moly compounds can help improve your ceramic product. Write for our booklet, "Properties of Molybdic Oxide". Address: Dept. 28, Climax Molybdenum Company, 500 Fifth Avenue, New York 36, N.Y.

CLIMAX MOLYBDENUM





PLANT LOCATION FACTS

Where to find plenty of the right kind of WATER

New York State has water in great quantity and of the right quality for industrial operations.

We can provide the answers to all your questions on water supply at any New York State location and without cost to you. We have complete details on all the municipal water supplies in New York State. We can provide measurements of the quantity or rate of flow of most of the State's important surface waterways based on records kept for periods up to nearly half a century. In the case of ground water supplies, we can provide data concerning the probable yield and fluctuations in the water table at any New York State locality.

The character or quality of New York State's water, both surface and underground, has also been determined. Analyses are available which show the content of various mineral and other materials, hardness, pH range, temperature and many other factors. The water available for use at any given location can be specially sampled and analyzed for you.

Water won't be your only problem in deciding on a new plant location. You will want complete facts on labor, markets, available sites or buildings, power, fuel, transportation and raw materials to mention just a few. And you will want information on these as they apply to the successful operation of a specific plant.

A tailor-made report

Any or all of the factors important to your analysis will be covered in a confidential report to you—tailored to your needs. It will be prepared by a professional and experienced staff to cover either New York State locations of your choice, or, if you wish, sites which we will select on the basis of your needs.

Our booklet, "Industrial Location Services," explains what we can do for you. To get your free copy, write me at the New York State Department of Commerce, Room 591. 112 State Street, Albany 7, New York.

EDWARD T, DICKINSON COMMISSIONER OF COMMERCE

Ahead: Trend Back to Tung?

The trend away from the use of tung oil in the manufacture of paints and other coatings may be reversed by research findings disclosed this week by scientists at the U.S. Dept. of Agriculture's Southern Utilization Research Branch at New Orleans.

The scientists report that they've found an answer to the processing problems encountered when tung is used in paints and varnishes. And, they also claim to have turned up a way to treat the oil to make fungusproof paint.

Long a favorite paint raw material, tung oil's high reactivity—due to unsaturated eleostearic acid—is both its boom and its bane. The reactivity gives it unique, fast-drying properties, which provide tough films. But it also makes the paint tough to prepare—at high cooking temperatures the oil often gels right in the cooking kettle.

USDA chemists are betting on zinc resinate (one part to five of oil) to whip the problem. The resinate reportedly makes cooking at 530 F temperatures relatively simple. The

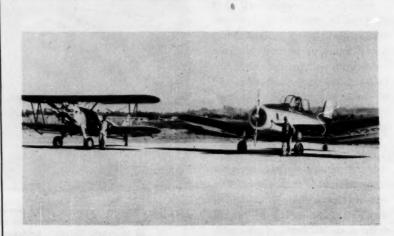
possible sacrifice of drying speed is countered by still another additive, a maleic modified resin ester of pentaerythritol.

For fungusproofing the oil, USDA has an imaginative—and still experimental—plan; instead of adding organic mercurials, it has replaced some of the eleostearic acid with fungicidal propionic or undecylenic acid.

PATENTS

Antifire Foam: Novel agent for fire fighting has been worked out by Pyrene Mfg. Co. (Newark, N.J.). It's a water-based foam system, with the foam stabilized by water-soluble, degraded protein foaming agents (U.S. patent 2,767,141). The agents, alkali metal salts, are made by hydrolyzing the protein, then treating the resultant products to form the salts.

Antifreeze: Hercules Powder Co. has worked out a "low freezing" liquid that includes not only the stand-by,



Spray Planes, Old and New

ONE LESS WING but twice the load-carrying capacity is the claim of Transland, Inc. for its new AG-2 agricultural spray plane (right). The plane, developed especially for agricultural chores, has a short take-off run, (less than 400 ft.), rapid climb (1,400 ft./minute), heavy load-carrying capacity (2,000-2,500 lbs.—

up to 53 cu. ft. of material or 250 gal. of liquid), excellent maneuverability at slow speeds. It has the same engine, a 450-hp. Pratt & Whitney, as the modified Stearman biplanes (left) that have been widely used for "dusting." The all-metal construction is coated for protection from corrosive crop-treating compounds.

Isobutyronitrile Specifications:

Boiling Range—100°-105° C.

Specific Gravity-20° C./20° C.-0.7690-0.7720

APHA color-20 max.

Water-0.8% max.

Aldehydes (as carbonyl)—1.0% max.

Isobutyronitrile is a flammable, poisonous liquid. It is shipped in 55 gal. drums.



isobutyronitrile

a reactive intermediate now available in commercial quantities

This new Eastman intermediate presents interesting possibilities for a multitude of organic reactions. The molecule is short and compact, with the reactive nitrile group available for various additions. On the other hand, thermal cracking, dehydrogenation or selective oxidation result in the formation of methacrylonitrile.

Indicative of isobutyronitrile's potentialities as an intermediate or raw material is its use in the production of Diazinon—a powerful new insecticide manufactured by Geigy Chemical Company. Diazinon is O, O-diethyl-O 2-isopropyl-4-methyl-pyrimidyl (6) thiophosphate, and isobutyronitrile is built directly into the molecule's pyrimidine ring. Isobutyronitrile is derived from isobutyraldehyde in a new plant at Texas Eastman Company's facilities in Longview, Texas.

Isobutyronitrile is only one of a versatile family of compounds derived from isobutyraldehyde. Other derivatives of this Eastman building block are isobutyl alcohol, isobutyric acid, neopentyl glycol and 2, 2, 4 trimethyl-1, 3-pentanediol. Isobutyraldehyde and its derivatives are useful in themselves or as starting materials in the production of solvents, plasticizers, pharmaceuticals, polymer intermediates, resins, insecticides, hydraulic fluids and lubricants.

If you are interested in isobutyronitrile, isobutyraldehyde, or its derivatives, we will be glad to send you samples for evaluation.

Eastman CHEMICAL PRODUCTS, INC., Kingsport, Tenn., subsidiary of Eastman Kodak Company

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tenn.; New York City; Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston. WEST COAST: Wilson Meyer Co., San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.



as light as a wisp

Lightweight Hackney cylinders save freight . . . help you tackle higher shipping costs

The low tare weight of Hackney compressed gas cylinders saves shipping dollars for you. Here's a practical, immediate answer to higher shipping costs resulting from increased freight rates.

Lightweight Hackney cylinders weigh less because they are made of selected high-quality steel that assures adequate strength without excess weight. In addition, the Hackney



Hackney compressed gas cylinders are made in many sizes, for high-pressure or low-pressure shipment of all types of gases.

process of cold drawing produces uniform side wall thicknesses that eliminate excess material.

Low tare weight is just one of the big reasons why Hackney seamless or two-piece cylinders are so often selected for the safe shipment of compressed gases. Rigid inspection, uniformity, durability, smooth surfaces and neat appearances are other good reasons. Write for specification sheets.

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Manufacturer of Hackney Products

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CONTAINERS AND PRESSURE VESSELS FOR GASES, LIQUIDS AND SOLIDS

SPECIALTIES

ethylene glycol, in water, but also formamide (U.S. patent 2,767,145). The liquid consists of 12-16% of the formamide, 42-62% ethylene glycol, and water.

Antidirt: Reaction products of sodium hydroxide on aqueous gluconic acid are suggested as cleaning compounds by Bonewitz Chemicals, Inc. (Burlington, Ia.). The procedure (U.S. patent 2,767,146) involves spraying particles of the hydroxide with a 50%by-weight solution of the acid (the total amount of acid sprayed is about 4% the hydroxide weight), and at the same time rapidly removing the heat of the reaction.

Untiring Wallop: Recently issued U.S. patent 2,767,115 shows how B. F. Goodrich keeps its strobane insecticide at effective strength. The firm stabilizes the strobane, which is a chlorinated chemical, by mixing in some of the unchlorinated, starting-point chemical. This prevents chlorine loss, boosts effective life from six months up to more than two years.

PRODUCTS

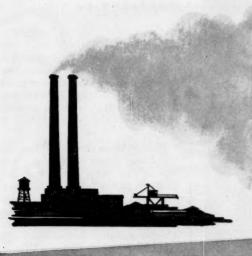
Visionary Product: Schwartz Chemical Co., Inc. (New York), is introducing Acrakleen, a new cleaner for acrylic plastic (and other clear plastic) windshields. It's a free-flowing powder containing an antistatic agent, is applied with a damp cloth. Acrakleen is packed in ½-lb., 6-lb. and 25-lb. containers.

Triple Stick: National Adhesives Division of National Starch Products, Inc. (New York), has just come out with three new adhesives:

- Resyn 36-6254 is for laminating cellulose acetate butyrate to foil (as in the production of metallic yarn). It's rubber-based.
- Resyn 76-3930 is for "boilable" cellulose acetate-foil laminates; it is vinyl-based.
- Resyn 76-3944 is a rubber-based adhesive for sticking Mylar to Mylar or to foil.

All three are best applied to the foil rather than to the film.

Maintenance Coat: Vinyl-based, virtually odorless, easily applied Ucilon Coating 1400 is a new maintenance paint now offered by Metal & Thermit



Never Again need this happen



Here is a portion of a landscape in which the soil was completely poisoned decades ago by sulfur fumes from metallurgical furnaces. Not a tree or shrub, not a blade of grass, not even the lowliest weed grows here. A CHEMICO plant would have saved this ruined countryside by capturing the poisonous waste fumes and converting them into sulfuric acid.

Today, CHEMICO Sulfuric Acid Plants are performing this service all over the country, where sulfurbearing gases from metallurgical or other industrial operations constitute a menace.

In doing so, these CHEMICO Sulfuric Acid Plants are doubly paying back their cost . . . by providing a source of income . . . by preserving our priceless soil.

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Designers and constructors of complete plants and facilities for the chemical and petrochemical processing industries for over 40 years

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South African Cyanamid (Pty) Ltd., Johannesburg



CC-816



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safely convert liquid chlorine to gas

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SPECIALTIES

Corp. (Rahway, N.J.). It is said to be resistant to acids, alkalis, water and other chemicals that cause paint failure, and is suggested for maintenance of equipment in chemical processing plants. A prime feature, according to M&T, is that little surface preparation is necessary.

Powder Squirt Gun: R. C. Can Co. (St. Louis) is now introducing a new type of fiber spray gun, for powder products. Its new model, the firm says, features a directional vent, anticlog feed, removable top, wax-coated inner tube for easier action, and a more effective pumping mechanism.

For Glassware Care: Ease of application is the key advantage of a new silicone coating for glassware worked out by Chicago Apparature Co. Called Siliclad, the new water-soluble concentrate (used in 1% solution) is applied simply by bathing the glassware in the treated water, allowing it to dry at room temperature. When applied this way, it is said to make the glassware (or other lab equipment) mar resistant, as well as more resistant to acid and organic solvents. Fourounce bottle retails for \$3.50; one is said to be enough for 7,800 six-inch test tubes.

Needle Lube: For the benefit of garment makers, Proctor Chemical Co. (Salisbury, N.C.) now makes a sewing specialty—a lubricating compound. It is applied in the fabric finishing, and reduces "needle cutting," increases sewing efficiency.

Annual Job: FX-Lab Co.'s (Newark, N.J.) new FX-3 is designed to prevent clogging of sewer pipes, septic tanks and cesspools, by eliminating tree roots, shrub roots or fungus growth that might plug the pipes. A crystalline formulation, FX-3 is said to "seal off" the drinking roots of the plants where they cause trouble, without affecting the health of the rest of the plant. Two-pound package of the chemical sells for \$3.95, is said to be good for one treatment that's effective for a year.

Plastisol Special: Triethyleneglycol dimethacrylate (SR 205) is now offered by Specialty Resins, Inc. (Philadelphia), for use in providing stiffness and rigidity in vinyl plastisols.



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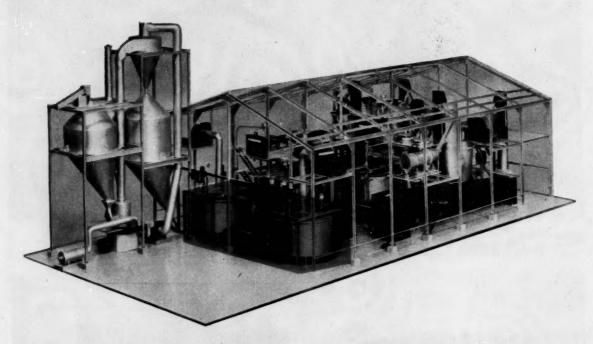


Pioneer in Petrochemicals

ENJAY COMPANY, INC., 15 WEST 51st ST., NEW YORK 19, N.Y. Other Offices: Akrop, Boston, Chicago, Los Angeles, Tulsa

November 10, 1956 • Chemical Week

PRODUCTION



DIGESTION IN DUPLICATE: Paired reactors at Northwest Nitro's Medicine Hat plant make . . .

Phosphoric from Rock-in One Step

A blend of European process knowhow with American production techniques has long been a successful formula for the rapidly growing fertilizer industry. Latest plant to adopt an imported process: Northwest Nitro Chemical Ltd.'s new \$22-million ammonium sulfate-phosphate plant at Medicine Hat, Alberta, Can. Going onstream this week (CW Technology Newsletter, Nov. 3), it will be the first American plant to produce fertilizers by the St. Gobain process.*

Northwest Nitro was organized by a group of American and Canadian firms. Commercial Solvents Corp. holds a 42.7% interest, operates the new company under a long-term management contract.

Construction was started at Medicine Hat in July '55, with Ford Bacon & Davis, Inc. (New York), as engineering manager and agent for the company. FBD's own construction group built the ammonium nitrate

process unit, which employs CSC's Stengel process (CW, Oct. 24, '53, p. 50), and auxiliary operating facilities. Construction of an anhydrous ammonia plant, a Chemical & Industrial nitric acid unit and a Leonard sulfuric acid plant was handled by Canadian Kellogg. The St. Gobain process units for phosphoric acid and ammonium sulfate-phosphate (11-48-0 and 16-20-0) fertilizer were engineered and built by Fluor Corp. (Los Angeles).

Simple, Flexible: The St. Gobain process differs from previous phosphate fertilizer processes in a number of important ways. Though standard unit processes and unit operations are employed, Fluor claims the process is far more simple from an equipment and operation slant. Key: a single-stage ore digester for phosphoric acid production. Other processes conventionally require as many as 11 reactors for the acidulation of phosphate rock.

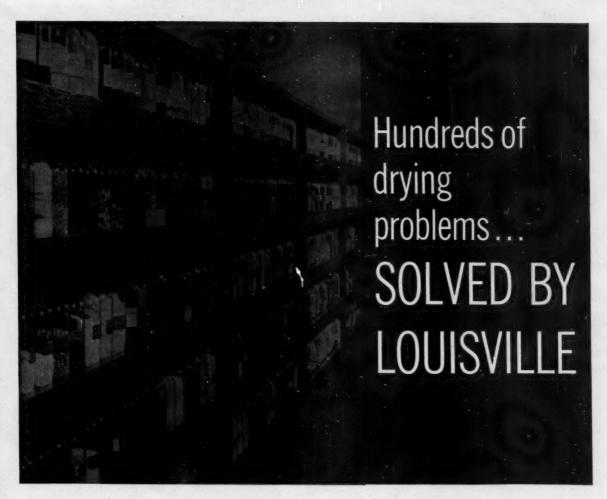
The single-stage digester, says Fluor, makes a St. Gobain plant somewhat cheaper to build and cheaper to oper-

ate. Furthermore, the phosporic acid reactor can be shut down over a weekend (for as long as 72 hours) without causing gypsum to go off-specification—i.e., the crystals don't change form or filterability. Added advantage: a system designed to produce ammonium sulfate and ammonium phophate can be converted easily and cheaply to nitrophosphate production.

Phosphoric Unit: Except for the unique digestion step, Northwest Nitro's phosphoric process is a straightforward acidulation of phosphate rock. Product phosphoric is separated from waste gypsum by filtration, is then pumped to a granulation section for blending with sulfuric acid, neutralization with ammonia, drying and final product sizing.

Raw material requirements at Medicine Hat are about 410 tons/day of phosphate rock, about 530 tons/day of sulfuric acid (330 tons for phosphoric acid, 200 tons for 16-20-0 production)—par for a fertilizer plant of its size. But in characteristic European fashion, St. Gobain minimized electrical energy requirements. Production of

^{*}The complex fertilizer process developed by Manufacture des Glaces et Produits Chimiques de Santi-Gobain (Chauny et Cirey, France) incorporates the phosphoric acid process developed jointly by St. Gobain and Union Chimique Belge. Both processes are available in the U.S. through Fluor Corp. (CW, Sept. 15, p. 42).



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H₃PO₄ from rock requires only 75 kwh./ton of P₂O₅ (exclusive of rock grinding requirements of 15 kwh./ton of ore); production of the phosphate fertilizer itself takes only about 60 kwh./ton.

Rock Handling: There are two significant differences between ore preparation for Nitro's single-digester system and that required for other processes. For one thing, coarser rock (90% through 90 mesh) can be used because digestion in a single tank extends the time of ore-acid contact. Too, the plant can operate on uncalcined western phosphate rock despite its high organic content.

Normally, high-organic ores must be calcined to avoid foaming problems in the digesters. And though the St. Gobain system only slightly reduces the actual amount of foam formed, it's designed to check foaming at the foam-liquid interface before it can build up to problem proportions. Even in the presence of slime, says Fluor, the process can grow good, uniformly filterable crystals that minimize plugging of the digester product filters.

Because the practical design capacity of St. Gobain's single-stage digester is limited to a maximum of about 75 tons/day, Nitro employs two 62½-tons/day units to get 125 tons/day of H₃PO₄. Each of the 28-ft.-diameter, 10-ft.-high reactors is operated as a completely independent line to provide maximum processing flexibility—a must for the somewhat seasonal fertilizer industry.

Cold Logic: To assure year-round operation, Nitro had to resort to special building construction and raw material handling practices. For instance, because of the extremely cold winters in Medicine Hat, all equipment has been placed indoors, buildings are designed for comfort even with —40-F weather and 60-mph. winds outside. And air for product dryers will be drawn from outside the plant in the winter and from inside during summer months.

Inaccessibility of the mine (a new J. R. Simplot Co. mine in Idaho) during the winter months makes the plant completely dependent on stored supplies of phosphate rock for the greater part of the year. Accordingly, oversize facilities for rock handling and storage have been built to permit stockpiling of the plant's entire annual supply during the three summer months.

ATOMIC	PROGRESS	TAKES	MANY	ROUTES

Type of Reactor	Prototype System	Planned By
1 Pressurized water	AEC's Materials Testing Reactor (MTR) started up 1952	AEC-Duquesne Light Co. Shippingport, Pa. (1957) Consolidated Edison Co. Indian Point, N.Y. (1960) Yankee Atomic Electric Co. Rowe, Mass. (1960)
2 Boiling water	AEC-Argonne National Lab's Experimental Boiling Water Reactor (EBWR) due to start up in 1957	Commonwealth Edison Co. (Nuclear Power Group) Dresden, Ill. (1961) General Electric-Pacific Gas & Electric Co. Livermore, Calif. (1958) Rural Cooperative Power Associates Elk River, Minn. (1960)
3 Sodium-graphite	North American Aviation's Sodium Reactor Experiment (SRE) due to start up in 1957	Consumers Public Power District Columbus, Neb. (1960)
4 Homogeneous	AEC-Oak Ridge National Lab's Homogeneous Test Reactor (HTR-1) started up in 1956 AEC's Los Alamos Power Reactors (LAPRE-1) started up in 1956 (LAPRE-2) due to start up in 1957	Pennsylvania Power & Light Co. Eastern Pennsylvania (1962)
5 Fast-breeder	AEC-Argonne National Lab's Experimental Breeder Re- actor-2 (EBR-2) due to start up in 1959	Atomic Power Development Associates (Detroit Edison Group) Detroit, Mich. (1958)
6 Organic- moderated	North American Aviation's Organic Moderated Reactor Experiment (OMRE) due to start up in 1957	City of Piqua, O. (1960)
7 Liquid-metal- fueled	Brookhaven National Lab's Liquid-Metal Fuel Reactor Experiment (LMFRE) plan- ned for 1959	City of Orlando, Fla. (1961)
8 Gas-cooled	Aerojet-General Corp.'s Gas- Cooled Reactor Experiment (GCRE) planned for 1958	

Now There Are Eight

The Atomic Energy Commission last month embarked on a new course—its eighth—toward the elusive goal of economic atomic power. The new system: a gas-cooled reactor suitable for direct coupling to a turbine generator. AEC and Aerojet-General Corp. (Azusa, Calif.) are currently negotiating a contract for the design, construction and operation of a gas-

cooled reactor experiment at the National Reactor Testing Station in Idaho.

Expected to cost an estimated \$4 million over the next few years, the gas-cooled reactor will be used to develop engineering data and experience for the design and construction of small central power stations and military package power plants. Hoped-



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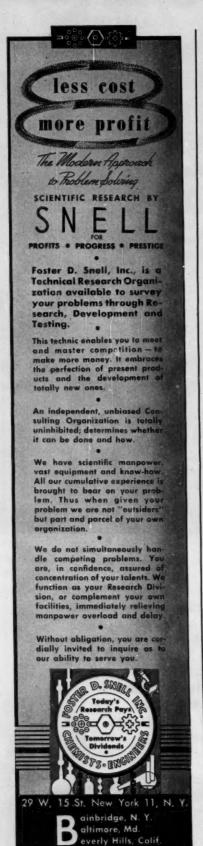
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PRODUCTION

for advantages of the system: more efficient heat utilization, fewer corrosion problems.

Old Concept: The idea of using gaseous coolants isn't new to nuclear engineers—the University of Wisconsin's Farrington Daniels proposed such a system in 1944; Britain's Calder Hall (CW, Oct. 20, p. 74) is using carbon dioxide in its primary heat exchange loop. But to date, most reactors have been designed to operate at temperatures below that required for the direct operation of a turbine generator.

Because they don't react with metals, the likeliest gaseous coolants—helium and carbon dioxide—permit the use of higher temperatures without an increase in corrosion and erosion problems. AEC's new reactor will probably produce gas temperatures of 1400 F or higher—high enough to attain good efficiency without a heat exchanger or steam boiler, but well below the melting-point range (3000-4000 F) of graphite and uranium.

Meanwhile, nuclear power is progressing steadily along the seven older routes (see table, p. 54). By latest count, three full-scale civilian power reactors are already under construction, 17 others are in planning stages. And though even the oldest conceptthe pressurized water reactor-has yet to be proved in its first commercial application (AEC-Duquesne Light Co.'s PWR at Shippingport, Pa.), power groups are already basing plans on new reactors still short of prototype operation. In fact, a proposal for a nitrogen-cooled, gas-turbine nuclear plant for the city of Holyoke, Mass., has been submitted for AEC approval.

EQUIPMENT

One-Point Thermometer: A custommade thermometer, calibrated for "absolute" accuracy at any point between -40 and 1000 F or -10 and 300 C, is the new offering of W. C. Dillon & Co. (Van Nuys, Calif.). A



Plant Pilots 'Popcorn' Rubber

POPCORN-SHAPE particles of butyl rubber (above) are now flowing at the rate of more than 1 ton/ day from Esso's recently completed \$1-million pilot plant at Baton Rouge. Developed by Esso Research & Engineering co., the new product is synthesized from refinery gasesisobutylene and isoprene—at a temperature of -140 F. The new pilot plant also turns out inch-thick, foot-square sample slabs of butyl rubber for field-testing, will be used to supplement Esso's original 200-lbs./day unit for development of new types of rubbers and plastics.



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PRODUCTION

notarized certificate comes with each thermometer, gives date of calibration, attests to "dead accuracy" with no plus or minus variation at the desired temperature. The dial is marked with the one temperature only. Thermometer stem-lengths from 21/2 to 70 in. are available.

Flash Evaporator: High-purity distilled water from sea water without contamination through entrainment is a main feature of the new, compact multiple-stage flash distilling plant of Badger Mfg. Co. (Cambridge, Mass.). The unit can also be used for decontamination of wastes, recovery of components from chemical effluent streams. Pumps contain the only moving parts; noise level is low, since no compression is necessary. Either highor low-level heat can be used-the value and quantity of heat available determining the number of evaporator stages needed.

Sheet Insulation: Armstrong Cork Co. (Lancaster, Pa.) is out with a new flexible foamed-plastic sheet insulation said to be readily adapted to curved and irregular surfaces (such as pipes, tanks) with little or no fitting or cutting. Called Armaflex, it will withstand temperatures to 160 F, has no low-temperature limitation. Sheets can be applied to most clean, dry surfaces with an adhesive, require no mechanical supports or vapor barrier. Thicknesses available: 1/8, 1/4, 1/2 and 34 in.; sheet size: 30x36 in. Thickness can be built up by applying successive layers.

Armored Pipe and Fittings: National Carbon Co.'s (New York) Karbate impervious carbon and graphite pipe and fittings are now offered with external armoring to protect against breakage. A glass fabric bonded to the pipe adds to strength, and, in case of pipe breakage, remains intact, holds line pressure, prevents gross leakage. The pipe is available in 1- to 4-in. diameters and lengths up to 9 ft., with flanged or plain ends. Fittings offered: 90-degree elbows, tees, couplings and flange collars.

Feeder-Heater: A new unit for feeding and heating finely divided ferrous and nonferrous materials such as iron oxides and molybdenum disulfides is the offering of Steel Processing Co.

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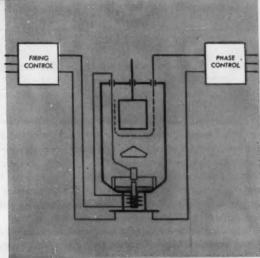
A small dc excitation arc is automatically ignited only once, when the unit is started. It is then maintained on the mercury cathode of each rectifier tube. It offers advantages similar to a pilot light. Since it is far easier to maintain an arc than to start it, this feature reduces the chance of the excitron losing excitation during power supply disturbances.

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A separate circuit utilizes the deionizing grid to obtain phase control. Grid-type phase control permits operation in the clean region near the anode where ion density is lowest, instead of on the surface of the cathode mercury pool where there is turbulence and contamination. Reliability of phase control does not depend on the condition of the mercury. This is an exclusive excitron feature.

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ALLIS-CHALMERS



Solution to a "Current" Problem at CROWN ZELLERBACH



In what other way you may ask — besides floating a log boom downstream — would a river current affect production in a paper mill? If you were operating a mill on the Willamette River where it joins the Columbia, you'd find that obtaining clear process water for production of bleach pulp could be a major headache. Contributing facts to this problem are the tidal action of the Pacific Ocean and the presence of turbidity and color — both characteristics of these two rivers. Specifically, this problem occurred at the St. Helen's Division of Crown Zellerbach, St. Helens, Oregon. The solution — three 120 ft. dia. Dorrco Clariflocculator units which now produce 30 million gallons of water per day containing less than 5 parts per million color and 5 ppm turbidity.

Obtaining process water for the pulp and paper industry may be only of academic interest to you. But, if you have a problem involving the separation of finely divided solids in suspension, the use of fluidizing techniques or ion-exchange, the chances are that Dorr-Oliver and its Associated Companies throughout the world can be of service to you.

*Clariflocculator is a registered trademark of Dorr-Oliver Incorporated



PRODUCTION

(Pittsburgh). The unit projects a continuous stream of material onto a concentric current of combustion gases or a flame, controls heat-treatment temperature, allows treatment in oxidizing or reducing atmospheres. The feederheater can be used with conventional rotating- or agitating-type furnace chambers or, in many cases, as an independent unit. The unit is flexible, has variable feeding speed, operates over a wide range of pressures, fuel and air volumes, heat-treatment temperatures.

Couplings: Two new pipe couplings—one for aluminum, the other for clay—are now available:

The coupling for aluminum pipe, developed by the John Bean Division of Food Machinery and Chemical Corp. (San Jose, Calif.), is said to withstand working pressures to 1,000 psi., comes in OD and IPS pipe sizes. Features include: breach-acting jaws that secure the coupler with a onequarter turn, lock screw that prevents the coupler from untwisting because of line torque. A Buna-N gasket resists attack by aromatics, keeps material within the line from contact with metal parts. The gasket is pressure-sealing, won't disturb flow to create friction losses.

The coupling for clay pipe is offered by W. S. Dickey Clay Mfg. Co. (Kansas City, Mo.). Made of polyvinyl chloride, it resists acids, bases, solvents, gases and greases normally found in industrial sewage. It is not affected by moisture, soil chemicals, fungi or bacteria, and does not dry out nor crack. The coupling is applied in liquid form to hot pipe at the factory, is joined by pushing the spigot into the bell socket after a lubricant sealer has been applied to the mating surfaces.

Temperature Controller: Its new Model 1100C,D pilot-type thermostatic controller can be supplied for temperature regulation of liquids or air within any 200-degree range between 50 and 600 F, says Fulton Sylphon Division of Robertshaw-Fulton Controls Co. (Knoxville, Tenn.). The instrument's rod-and-tube thermal element is immersed directly into the medium being controlled, activates pilot valve at any temperature change. Controller measures 31%6-in. wide, 19%4-in. long, operates by compressed air.



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This is but one example that illustrates the superior oxidation and color stability of Emersol Stearic Acid. When this is added to their outstanding resistance to rancidity, their excellent color stability, and uniformly high quality, you have an unmatched combination that will make your products better, more appealing, and keep them that way longer. Since Emersol Stearic Acids cost no more than competitive grades, why not order enough for your next regular requirements and see such results yourself.



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RESEARCH



OM'S MARTIN (left), HYATT: In a busy computer schedule, room for fuel, chemical, pilot-plant studies.

Medium-Size Computers Make New Gains

Any notion that the biggest electronic brains are necessarily the best is being dispelled as researchers take up the cudgel for moderate-size computers that stress convenience and economy. Multimillion-dollar computers may be fine, they say, for special problems and business applications. But these giants aren't needed for many research projects.

This trend in thinking is apparent from recent computer choices by chemical firms. Du Pont, purchaser of a Readix* computer for its polychemicals department, reports the machine (priced at around \$79,000) is useful not only in solving problems but also in preparing them for larger machines. That's the thinking, too, of Dow computer expert Ascher Opler who asserts that the smaller machines can save expensive trial-and-error work on their giant counterparts, and that "one (small) machine kept busy at technical computations 8-12 hours a day can probably handle the problems of an average organization with 100-300 technical men."

For its new computer facility, Olin Mathieson's aviation division (Niagara

Falls, N.Y.) picked a Type 650 IBM magnetic-drum digital computer (which, with auxiliary equipment, leases for \$8,664/month) rather than some larger types available. According to OM's Norman Hyatt, who heads the computer department, the machine's capacity is ample for the present. And the investment is expected to lead to appreciable savings in time, money and technical manpower.

Pays for Itself: Hyatt points out that calculation of chemical equilibrium

constants, reaction temperature, enthalpy, and entropy of a chemical reaction (for which the machine is intended) requires about three weeks by long-hand desk methods. But the computer time for equivalent work is 10-12 minutes (plus about two months to program the general calculations for the computer).

For calculations on one chemical reaction, the longhand method is, therefore, more economical. But OM has at least 200 such reactions to study—

HERNDON, HYATT, WHITACRE: To rocket fuels, a short cut.



*Made by the J. B. Rea Co., Inc. (Santa Monica. Calif.).

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Polymeric type: Polyesters obtained by the reaction of 1,4-Butanediol with dibasic acids are outstanding plasticizers for vinyl polymers, particularly vinyl chloride and vinyl chloride copolymers.

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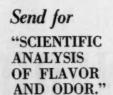
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RESEARCH

requiring 40 hours of computer time vs. 24,000 man-hours by the longhand method. This one project, if done by longhand, would cost more than a year's rental of the computer.

Evaluation of the performance of promising rocket fuels is another top project at OM. In 100 hours (or about \$5,500 worth of computer time), the machine will duplicate tortuous high-energy-fuel calculations worth about \$200,000 in Ph.D. man-hours. Such comparisons, of course, are hypothetical, since—in the absence of a computer — time-consuming, expensive projects are likely to be shelved.

Natural Choice: Computers, already entrenched in chemical research (CW, Dec. 18, '54, p. 88) are a natural for rocket-fuel studies because of the maze of mathematics the latter involve. Determination of available power from a fuel-oxidant mixture (e.g., hydrazine and nitric acid) may require solution of seven simultaneous equations. More intricate problems—e.g., to determine peak power for fuel-oxidant mixtures of various proportions—by longhand takes an exorbitant amount of time, money and manpower.

OM's new computer will tackle other posers, too—e.g., which fuel-oxidant combination should be used at a specified combustion temperature or, conversely, what the combustion temperature is for a given fuel-oxidant combination.

To get such information, the computer is fed data on the fuel-oxidant weight ratio, molecular weights of these reactants and of all possible products from combustion. Within the machine, program cards carry thermodynamic equations for all possible products from the chosen fuel and its oxidant. The whirring electronic brain arrives at a heat balance for the products of combustion, uses it to come up with the required answer.

Sample Answer: The combustion temperature is found from the heat content of the reactants, which must, in turn, equal the heat content of the products of combustion.

Pilot Saver: Hyatt will be working on other problems, too; mostly with chemical research manager Donald Martin. Besides evaluating about 50 hopeful rocket fuels, the computer will help in pilot-plant studies. Analyzing pilot-plant variables (e.g., yields vs. time, temperature, etc.) to determine the best operating conditions can take

days when done longhand. That's expensive when a pilot plant costs \$1,000/day to run. The computer is expected to help pay for itself by apping pilot-plant yields, and shortening the time required for such projects.

OM's aviation division research in potentially valuable rocket fuels is headed by L. K. Herndon and Deputy Director F. M. Whitacre. Their new computer may eventually be available to the rest of OM.

REPORTS

These new research reports are available from the Office of Technical Services, U.S. Dept. of Commerce, Washington 25, D.C.:

- Vacuum Evaporation of Heavy Metallic Films (PB 121175), \$1—describes new evaporation equipment capable of forming heavy metallic films 10 to 40 times the thickness of films obtained by commercial methods.
- Fundamental Study of Natural and Synthetic Films on Magnesium and Its Alloys (PB 121322), \$4.25—covers techniques of studying films that form on magnesium during surface treatments or corrosion.
- A 900-item bibliography on damping of materials and structures is contained in PB 121437. Price: \$2.75.
- Four studies in magnetic materials research by the Navy—PB 1211-76, The Preparation of Single Crystals of the Oxides of the Transition Elements (75¢); PB 121177, The Experimental Production of Thin Ferrite Films and a Survey of the Magnetic Properties of Thin Films (\$1.25); PB 121169, Magnetic Properties of Low-Permeability Alloys (50¢); PB 121168, Controlled Atmosphere Melting of Magnetic Materials (50¢).
- A new one-package pretreatment coating for steel, aluminum and magnesium is described in a final research report, Development of a Coating, Pretreatment for Metals (Wash Primer), PB 121362 (\$3.25). A wash primer of pigment composition 50% strontium chromate-50% zinc chromate had the best corrosion-resistant and stability properties; polyvinyl butyral was superior as a vehicle.
- High-Temperature Antioxidants for Synthetic-Base Oils—in five parts —covers results of Air-Force-sponsored research. The collection (PB 121-

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November 10, 1956 • Chemical Week



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RESEARCH

077 through PB 121081) may be purchased for \$16; individual prices range from \$1.25 to \$5.50.

• A three-part report, Research on Boron Polymers, is now available. It's designated PB 111689 (\$1.50), PB 111892 (\$2.50), PB 121374 (\$1.25).

• Sixty-four research reports on selecting, improving, evaluating and developing new elastomeric materials are contained in a two-volume publication, Elastomer Research, and Development—volume I, PB 121360 (\$2.50); volume II, PB 121361 (\$5.50).

EXPANSION

• Du Pont of Canada Ltd. will add a \$750,000, three-story technical laboratory to its Kingston, Ont., nylon spinning plant for research on nylon and new processes. It's expected to be ready by the end of next year, will be headed by Technical Manager G. Ross Dance.

• Mellon Institute (Pittsburgh, Pa.) plans to construct a \$1-million laboratory to house its newly established department of radiation research. Slated for completion by late summer, 1957, the lab will include a 3-million-volt Van de Graaff accelerator now on order from High Voltage Engineering Corp. (Cambridge, Mass.).

 West Virginia Pulp and Paper Co. has formally opened its new research and development laboratory at Covington, Va. Westvaco will do all its pulping, bleaching and papermaking research there.

England's Coke Research Assn.
 will build a new coke research plant close to the National Coal Board's \$28-million coal carbonization plant at Winderworth, Chesterfield. Construction is expected to be completed in about 18 months.

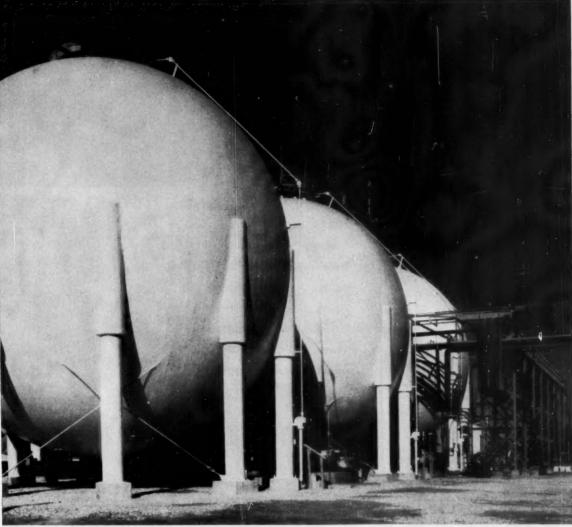


Dressing Up for Winter

RESEARCH MANAGERS are finding that a flair for such subjects as landscaping and interior decorating may be worth cultivating. Typical of the sort of problem they have to cope with is the way their research labs look to the touring public. Right now, for instance, Lederle Labora-

tories, one of the country's mostvisited research sites, is getting ready for winter. The nine tour guides are changing from light blue to dark blue uniforms, and the 600-acre site's 400 young azaleas and 30 rhododendron bushes are donning protective coats of burlap.





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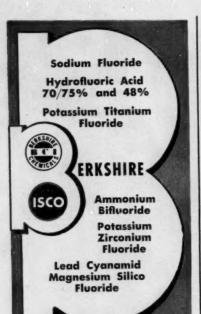
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RESEARCH



AIR REDUCTION'S GIL-BERTSON (above), one of 14 executives teaching class in research management, stresses a point on his subject, "Direction of Research at the Working Level." NYU'S WORK (right), course mentor, lines up "instructors" and topics; in his class . . .



Lab Men Learn to Manage

Time was when research management was something you could "pick up" on the job. But now research programs are so large and complex that administering research is a subject all its own. Illustrating its newly found stature: a class now in session at the graduate level in research management at New York University's College of Engineering. Called "Case Problems in Research Management," it covers a wide variety of topics in talks by research executives from industry and government.

Setting It Up: While a course in research managements has been taught at NYU for a number of years, this is the first time that guest speakers from industry make up the entire program.

Organizer of the course is Professor Harold Work, director of NYU's Engineering Research Division and formerly director of research at Jones & Laughlin Steel Co. Work's thesis: "The procedures of good research management can best be taught

by men right in the thick of things."

He got the idea of using industry speakers from his experience as member of NYU's conference on the Administration of Research. This group, made up of men from industry, government and educational institutions. gets together once a year to talk about procedures and practices in running a laboratory. At each session, says Work, a profitable exchange of facts and ideas takes place. He believes the results of these sessions would also be of value to aspiring research administrators. And, thanks to his close association with the group's members, he has been able to line up a roster of top-flight speakers.

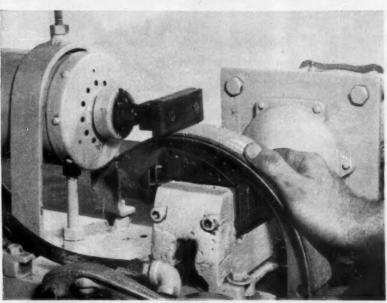
Work believes that the course is of value not only to the potential laboratory head but also to research people who must work under, and communicate with, the director of research. And, although not every research worker can attain (or would wish to accept) supervisory responsibilities, the course makes a researcher aware

News about

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Ray-BOND **ADHESIVE MADE** WITH HYCAR

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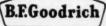
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In Chemicals



tin was playing an interesting role in dentistry—as a filling for teeth. Because tin is more readily attacked by acids than is tooth enamel, the filling was slowly eaten away, while the tooth remained intact. Tin-filled teeth more than forty years old were reported in the dental journals of the day.



TODAY to help teeth last longer, a tin chemical is added to tooth paste. Its history is interesting. For a long time water-borne fluorides have been known to be highly effective against the incidence of tooth decay. To make this protection available in a toothpaste, a form of fluoride was needed that would retain this beneficial characteristic and, in addition, be mild to the human system. M & T Stannous Fluoride is providing the answer to dentistry's need for a product with these specific characteristics.

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RESEARCH

of what his administrator is trying to do. Consequently, declares Work, this increases the over-all usefulness of researchers to their companies.

Insofar as practical, the talks are presented as actual case histories and examples. And a part of each class is devoted to students' discussions and solutions of problems.

Right now, about 25 are attending the once-a-week sessions. They're all employed full time in industrial, governmental or university research laboratories, hold down such positions as chemist or project engineer in larger companies (e.g., Linde Air Products, General Foods Corp., Sperry Gyroscope), and include research directors of smaller firms (e.g., Francis Earle Laboratories, Gravure Research).

Fourteen talks are being given in the course. A sampling of speakers and their subjects: Lyle Gilbertson, director of Air Reduction Co.'s Murray Hill Laboratory, "Direction of Research at the Working Level"; Thomas Vaughn, Colgate-Palmolive Co.'s vice-president of research and development, "Selection of Research Projects"; E. Duer Reeves, Esso Research and Engineering Co.'s executive vice-president, "Research as an Integral Part of Business"; Roland Soule, Irving Trust Co. vice-president, "Corporate Finance and Research."

Covering the Ground: Typical of the approach being taken was pointed up by Air Reduction's Gilbertson. His talk covered such topics as the size and setup of the research organization; deciding how and where research money is to be spent; laboratory communications (with special emphasis on conferences and reports) and controls.

Colgate-Palmolive's Vaughn dealt with sources of ideas for research projects; determining which ideas are worth researching; what balance to maintain between long-term and short-term research projects; methods of following up on projects.

In a talk scheduled for next month, Irving Trust Co.'s Soule will elaborate on such points as measuring successful research; determining how much expansion-minded research vs. defensive-minded research is best; the importance of the cost of capital in financing new projects; factors to consider in deciding the rate of growth that is right for a company at each stage in its career.

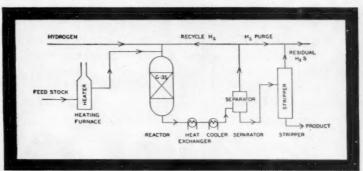
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A unit for demonstrating the performance of Girdler G-35 Catalysts on customer feed stocks.



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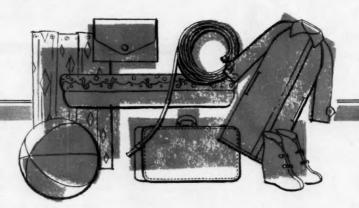
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Technology Newsletter

Mensietter

CHEMICAL WEEK
November 10, 1956

Stauffer Chemical is developing a new titanium metal process.

The firm is not saying anything at all about it, but the method is known to have advanced to the pilot stage.

It has never been any secret that Stauffer's main interest in titanium is in supplying the tetrachloride to others to convert into metal. So, at first glance, the metal project would appear to be out of keeping with the company's history.

Just the opposite could be the case. A titanium metal process could prove a nice ace in the hole for Stauffer. It has no raw material position in titanium ore. A metal process could prove to be insurance against getting caught in an impossible squeeze between rising ore costs and dropping metal prices.

Little is known about the process itself other than that tetrachloride is the starting material. A good bet is that it's a thermal dissociation. So far, the method has not turned out any metal that would meet requirements for commercially pure titanium. But purity will probably not be a problem.

In its Ashtabula titanium tetrachloride plant, incidentally, (CW Technology Newsletter, Oct. 13), Stauffer initially will use a rutile feed, gradually add some ilmenite. Likely eventuality: it will switch completely to a slag (e.g., the product from Quebec Iron & Titanium's Sorel operations).

Eli Lilly halted tests on BZ-55, an oral drug for controlling diabetes (CW Technology Newsletter, Feb. 25), last week, but Upjohn is continuing with Orinase, its competitive material (ibid).

Says Lilly: Untoward effects in about 5% of the patients tested has led to the suspension of its 15-month trial. In view of the fact that the compound is a sulfa drug, this effect was not totally unexpected. Lilly says, however, that it is continuing research on other orally administered drugs for controlling diabetes.

Says Upjohn: Occurrence of untoward side effects (with Orinase) have been "minimal and transient." All in all, Upjohn terms the tests encouraging, says the drug gives promise of being able to control diabetes in a "significant" portion of cases. Orinase is a sulfonamide.

The need for a cheap, effective catalyst to reduce the amount of smog-producing ingredients in automotive exhausts (CW, June 2, p. 84) may be sketched in clearer tones as a result of a study to be undertaken by the Coordinating Research Council, a joint research organization of the automobile and petroleum industries. CRC will spend \$150,000 on a

Technology

Newsletter

(Continued)

month-long field test of 400-500 automobiles. Object: to find how much smog-causing materials are in the exhaust, and under what conditions they form.

Cutoff devices that reduce emission of pollutants during periods of deceleration have been touted as an alternate to the catalytic muffler. But CRC says that preliminary data indicate they are not living up to their promise. It now feels that the solution will be in a combination fuel cut off and afterburner muffler.

Stainless steel canned pumps will not merely be as cheap as comparable conventional models. They'll be cheaper. That, at least, is the goal of Chempump (Philadelphia), a pioneer in the canned pump business.

This week, it is telling its representatives about the new, lower price tags. Its ³4-hp. Model SF (⁸/₁₆-in. stainless) with Class A insulation will sell for \$325 (instead of \$465). With Class H insulation, it will go for \$385 (instead of \$525). Comparable reductions have been made in pumps made with Carpenter 20.

The SF model can develop a 90-ft. head, has an open-flow capacity of 50 gpm. Chempump has done some comparison shopping, claims the \$325 model can undersell a regular centrifugal in the same class by \$25. And, it says, it can undersell the same pump with a special seal by \$125-150.

The new prices have been made possible, it says, because it is starting to make them in mass production.

The Suez Canal crisis is having technological repercussions. The possibility of losing Mideast oil has started oil men thinking anew about tar sands in Alberta. Says K. A. Clark, research engineer in charge of oil-sands studies for the Alberta government: "New leases have constantly been taken out by the oil companies during the past few months." Conferences are going on right now with a view toward possible exploitation of the 300 billion bbls. of oil locked up in the sands.

The sands, of course, are at best a long-range solution of the problem. It would take several years to get oil in any volume from them even if the decision were made today. And a cheaper means of getting the oil out would probably still be needed before any such decision is taken.

Union Oil's shale oil demonstration plant is further along. In a letter to employees about company earnings, Union reports that the plant will be essentially complete by the first of the year. Designed to handle 300 tons/day of shale, it is expected to be ready for shake-down testing next month.

"You'll probably find this acid more economical than any other organic acid"

That's the way Jim Donald, Du Pont Polychemicals Department sales representative, describes Du Pont hydroxyacetic acid to his customers. This relatively strong acid is easier to handle than mineral acids and has many important applications.

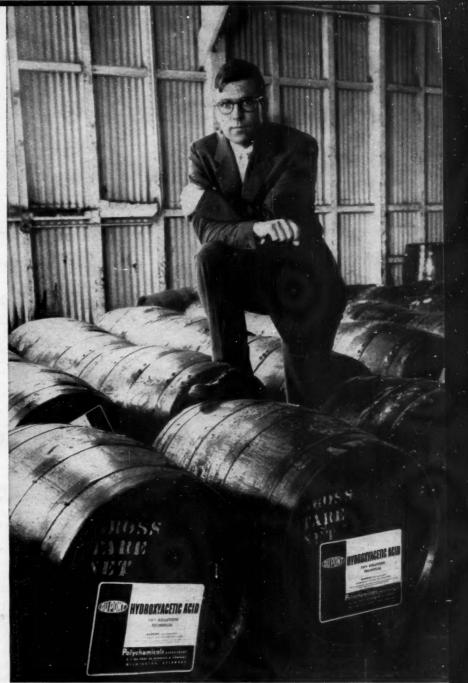
Du Pont hydroxyacetic acid is useful in acid detergents for dairy equipment and is an effective ingredient of electropolishing and electroplating solutions. It's also used for the acid dyeing of wool and for dyeing and tanning of leather. For many uses, hydroxyacetic acid is probably the most economical of all the organic acids.

Think of Du Pont hydroxyacetic acid in terms of your own manufacturing requirements. Here is an acid miscible in all proportions with water and water-soluble organic solvents-including methanol, ethanol, acetic acid and acetone. It's shipped to you as a 70% solution in water.

Regardless of the quantity needed, you can count on Du Pont quality and prompt delivery. Want more information about Du Pont hydroxyacetic acid? Just mail the coupon.



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JIM DONALD earned a degree in Chemical Engineering at Stanford University and another in Business Administration at Harvard. Jim covers Southeastern Pennsylvania, Southern New Jersey, Delaware,

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- ALCOHOLS

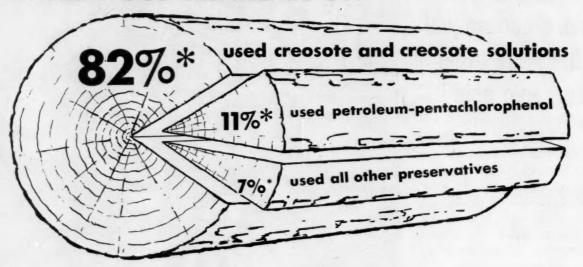
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OF ALL WOOD TREATED IN '55:



New Trends in Wood Preservatives

Producers of wood preservatives seem to have more than their share of worries these days; how much anyone of them worries depends largely on the ability of his product to buck a rough—and shrinking—market. For not only are conventional materials losing ground to the onslaughts of newer products, but also the total annual volume of wood treated with preservatives is declining steadily.*

Right now, attention is focused primarily on two types of wood preservatives: creosote materials because they have long held a major, though now declining, share of the market; petroleum-pentachlorophenol because its consumption, though still relatively small, is growing steadily. Demand last year for straight distillate coal-tar creosote as a wood preservative climbed to 97.3 million gal.-12% higher than in '54. Use of creosote solutions (with coal tar, petroleum or other solvents), however, decreased 15% from a total of 62.6 million gal, in '54 to 53.3 million in '55. Net result: total creosote consumed in '55 was 1.2 million gal. more than in '54 (an increase of slightly less than 1%) but still far below the 200.8 million gal. used for wood preservation in '52.

Meanwhile, wood preservers' consumption of pentachlorophenol—nearly 3 million lbs. in 1951—continued to rise in '55, hit 10.5 million lbs., about 26% more than in '54.

Looked at another way, creosote actually seems to be losing markets to pentachlorophenol and other preservatives. In 1955, it was used to treat 82% of all wood processed in this country (compared with 85% in '54); at the same time, the volume of wood treated with petroleum-pentachlorophenol increased from 9% to 11%, and the volume treated with other preservatives edged up to 7%, from 6% in '54.

Proprietary Preservatives: Pentachlorophenol is now the main contender for creosote's markets; but other preservatives—mostly proprietary mixtures—collectively exert further competitive pressure.

Demand for chromated zinc chloride increased from 2.4 million lbs. in '54 to 2.58 million in '55; for Tanalith, the principal Wolman salt (contains sodium fluoride and chromate, disodium hydrogen arsenate, dinitrophenol), from 1.97 million lbs. to 2.13 million; for Celcure (acid cupric chromate), from 1.09 million lbs. to 1.43 million.

Trailing with smaller but growing demands: Minalith (containing diammonium phosphate, ammonium sulfate, sodium tetraborate, boric acid), from 307,799 lbs. in '54 to 883,947 in '55; Chemonite (ammoniated copper and arsenic salts), from 279,766 lbs. to 359,051; Boliden salt (arsenic, chromium and zinc salts), from 275,695 lbs. to 341,856; Osmose (dinitrophenol, sodium fluoride, potasium bichromate, disodium hydrogen arsenate) from 56,775 lbs. to 224,961; miscellaneous preservatives, from 157,855 to 195,246 lbs.

Consumption of two materials declined: Protexol and Pyresote (zinc chloride, ammonium sulfate, boric acid, sodium bichromate), from 721,-570 lbs. in '54 to 682,709 in '55; and copperized chromated zinc chloride, from 408,638 lbs. to 333,118.

Cross-tie Cutbacks: Primarily responsible for the drop in total volume of wood treated in '55 was a cutback in processing of railroad cross-ties.

Close to 26.7 million cross-ties (86

^{*}In 1955, the total volume of wood treated with preservatives (to protect against decay, termites and other insects, marine borers, and fire) was about 248.4 million cu. ft.—some 2 million less than in '52.

Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.—America's largest producer of salt

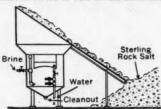


To save both time and manpower in salt handling—many plants have installed salt-storage units which feed directly into a salt dissolver. These units are particularly useful in plants where large tonnages of salt are consumed every day. But even in smaller plants, combination storage and feeding units are proving valuable. This is because they cut down on the amount of floor space needed to store salt.

In plants where floor space is at a premium, salt is often purchased in bags to permit high stacking. Here, too, combination storage and feeding units can produce substantial savings. They permit the purchase of economical bulk rock salt—and reduce salt-handling costs to a minimum.

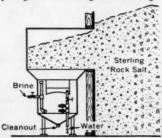
What about one of these units for your plant? Here are six of the most practical designs for combining salt storage and feeding. One of them—or an adaptation of the basic design—may be effective in saving floor space and lowering salt-handling costs for you.

1. Filling dissolver from floor pile. If salt must be stored in bulk on the same floor



as the dissolver (all dissolvers shown here are International's famous Sterling Model Lixator), an excellent feeding device is a portable belt conveyor. The best type for moving salt is made of aluminum with a rubber belt, and is between 16' and 20' long. The same conveyor moves salt not only from a floor pile into the Lixator, but also from a car or truck into the plant.

2. Wall-type hopper, bolted directly to an opening in a salt-storage bin. As long as

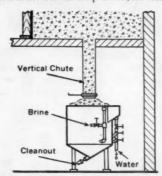


Combining Storage and Feeding Makes Salt Handling Easier

the salt supply in the bin is sufficiently high to permit gravity flow into the Lixator hopper, feeding will be automatic. When salt supply is no longer self-feeding, the operator stands on the salt in the bin and shovels directly into the hopper.

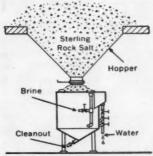
3. Overhead storage with gravity feed into hopper. This design is often used when uninterrupted salt feed is needed, but the storage floor has relatively little salt capacity. A cylindrical-type hopper directly under the hatch holds a large amount of salt for feeding the Lixator—and acts as a substantial secondary storage unit. Ordinarily, though, if salt can be stored above the Lixator, the next design is preferable.

4. Overhead storage with vertical chute. This direct-feed unit is a practical, econom-



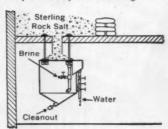
ical way of operating the Lixator. If storage capacity on floor above is large enough, no hopper is needed, which means a considerable saving. Feed is automatic because of angle of repose for salt.

5. Pyramid-type hopper design. This is another variation of overhead feed, coupled



with large storage capacity. But if storage space on floor above is limited, this design is also practical. Salt can simply be dropped into the hopper through a large hatch with a removable cover.

6. Lixator hung above floor, to save floor space. A very desirable design when



floor space is at a premium. Design here also shows use of a few salt bags to act as a storage-bin wall—in lieu of a permanent bin structure.

One final note about the equipment shown here. All Lixators operate on exactly the same principle. They vary only in size and capacity, and in methods of delivering salt to the dissolver unit. All Lixator designs are exclusive International Salt Co. developments, properly protected by patents and patents pending.

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MARKETS

million cu. ft. of wood) were treated last year, but this was nearly 19% fewer than in '54 and the smallest number since 1933.

Switch-tie treatment decreased nearly 2 million board ft. in '55, a drop of about 2% from '54. Practically all cross-ties and switch-ties were treated with creosote materials, less than 0.5% were treated with petroleum-pentachlorophenol and other preservatives.

Coal-tar producers, it would appear, have placed too much reliance on the cross-tie market; actually, the outlet can be expected to decline rather than expand during the next decade. This opinion was expressed last fortnight by T. J. Kinsella, president of Allied's Barrett Division, at the annual meeting in White Sulphur Springs, W. Va., of the American Coke and Coal Chemicals Institute.

But the industry can still be optimistic, observed Kinsella, because the market for treated lumber in home building is expanding, will more than offset losses in the cross-tie outlet. However, wood preservation statistics for the past few years do not point to such a favorable outlook for creosote producers.

For example, the volume of lumber and timber treated with creosote-petroleum increased from 2.5 million cu. ft. in '52 to 3.1 million in '55, but volume treated with creosote and

creosote-coal tar declined from 25.4 million cu. ft. to 18.6 million during the same period.

On the other hand, volume of lumber and timber treated with pentachlorophenol increased from 1.7 million cu. ft. in '52 to 3.4 million in '55; footage treated with Wolman salt (Tanalith) increased from 4.8 million cu. ft. to 6.2 million, and similar advances were made by other preservatives.

Note, too, what has happened in the treatment of plywood. Total volume treated in 1953 was about 1.85 million sq. ft.; in '55, 1.72 million. Though the total volume treated decreased, the amount of pentachlorophenol-treated plywood increased from 179,785 sq. ft. in '53 to 385,998 in '55. (Only a trifling amount [958 sq. ft.] was creosote-treated in '55.)

Meanwhile, the amount of plywood using Wolman salts dropped from 1.59 million sq. ft. to 800,000, but the volume protected with all other noncreosote, nonpentachlorophenol preservatives soared from 73,808 sq. ft. in '53 to 527,003 in '55.

Will creosote make a comeback in the wood preservation industry? Some experts say yes, others say no. Only one thing seems certain—creosote producers will have to fight hard not just to get new markets but to keep the ones they now have.

Succor for Nickel Users

Out of Washington comes word that the Office of Defense Mobilization is suspending stockpile purchases of nickel until after the first quarter of '57, and probably won't resume such buying even then (CW, Washington Angles, Oct. 27, p. 25).

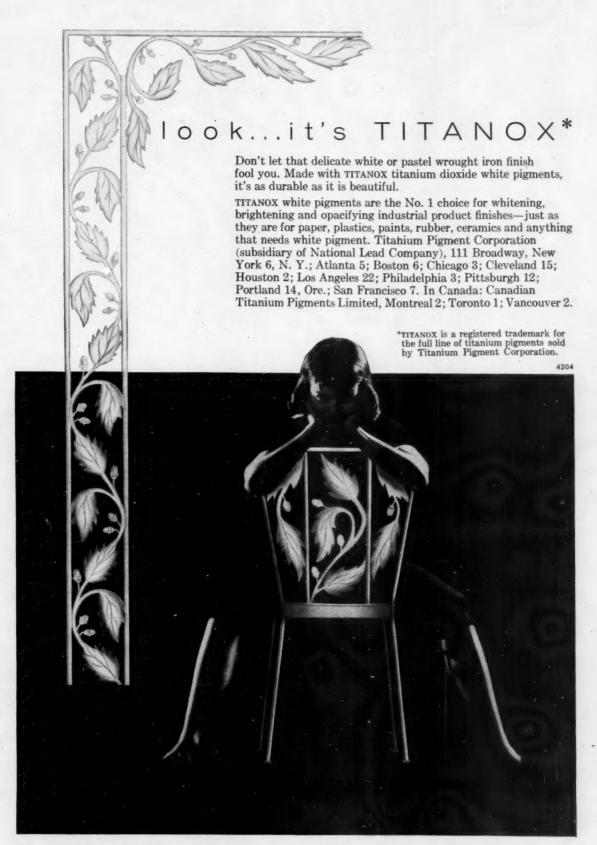
To some nickel—and nickel chemical — marketers, the announcement presages, at long last, the start of a dramatic reversal of the strategic metal's supply/demand position; to others, it indicates only another needed step toward easing the plight of nickel-needy nonmilitary consumers.

Despite the divergence of opinion on ODM's action, it's generally conceded by both government officials and industry spokesmen that a complete switch from a long-time-strapped market to one of ample supply is still a good three or four years off (CW, May 19, p. 154). Not until then will the government-sparked 140-million-lbs./year expansion goal approach fulfillment.

Underscoring this line of reasoning is a just-out three-year study* of nickel's long-range supply/demand status. The conclusion: military, steel and platers' continuing needs for nickel, plus the current uncertainty surrounding some of the newer low-grade ore extractions through which the government is trying to stimulate production, add up to a "serious shortage perhaps through 1960."

Caught Short: Military demand for nickel, already heavy, is increasing (particularly for use in high-tempera-

*Sponsored by Henry Lytton, former government nickel advisor, now a Washington business consultant.



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MARKETS

ture alloys for jet aircraft and engines); stainless steel production is booming; and there's insistent demand from other outlets including nickel chemicals manufacture, which this year will take some 6% of the world's total nickel supply.

Nickel platers, though, are probably the most sorely affected. Indicative are their complaints to investigating Congressional committees about the "black market" prices asked for what little material is available. (Amount of fancy-priced nickel, mostly of French, Japanese and West German origin, totals a couple of million pounds or so-insignificant compared with U.S. consumption of about 300 million lbs./year. Trade sources, too, report that current quotes are \$2-2.50/lb., substantially under late spring's high of \$3/lb. Domestic producers' schedules have been maintained at 641/2 ¢/lb., although 25-50% of stockpile-diverted nickel, which had been produced from low-grade ore at higher cost, is selling at between 70-90¢/lb.)

All this has led to the government's boosting its own nickel production, curbing exports, surveying defense-rated orders (to make sure they're justified), diverting stockpile-headed nickel into industrial channels (e.g., an additional 5 million lbs. this quarter, which brings the year's total diversion to nearly 80 million lbs.); and, late last month, the government questioned nickel users on how much nickel they need, where they get it, where they use or sell it, and what price they pay or receive for it.

ODM is also considering direct financial loans to nickel producers to help cover "unusual development costs" in upgrading new low-grade ore deposits and to encourage output. This is a step beyond the bonus purchase price for government-contract nickel that General Services Administration previously announced through ODM.

While no producer has yet signed a contract with GSA to take advantage of the purchase and tax amortization incentives, at least two or three companies may do so soon. When such expansion contracts are signed, ODM will likely brake its stockpiling program.

Calling a halt to the government purchases won't free enough nickel to completely satisfy all consumers' demands—but it'll help.

THORIUM

URANIUM'S INTERESTING STEPCHILD

The age of Victorian splendor was in full swing. And incandescent gas lamps were lighting America. The heart of these glowing lamps was the gas mantle — made, for the most part, of thorium.

Lindsay was a famous name in the gas-light era, a major producer of gas

The manufacture of gas mantles calls for the impregnation of a knit fabric cone of ramie or rayon with thorium nitrate and cerous nitrate. The organic fiber is burned off, leaving a relic structure of thorium and cerium oxide which glows white hot in a gas flame.

Around 1920, gas illumination was largely supplanted by electric lighting. Demand for thorium dropped. Then came the atomic age. Thorium again became important because of its value as a reactor fuel breeder.

At the present, there are two systems in which thorium can be used as a fuel material breeder. One is the use of metal or a thorium-bismuth alloy; the other, a thorium oxide slurry reactor. Both procedures are being investigated by the AEC and private industry. It is believed that at the assumed burnup rate of thorium oxide (one pound of ThO₂ for six megawatt hours of electrical energy) the thorium-rare earth industry is probably capable of han-

dling domestic demands without excessive expansion. Thorium looks good as a reactor fuel for private industry because it is much more plentiful and economical than uranium.

So much for the Buck Rogers stuff . . . what's ahead for thorium, excluding the energy field? The answer to that is "plenty" and chances are it can be of immense value to you—it already is in a number of industries.

The most common thorium salts are the nitrates, oxides, fluorides and chlorides. Lindsay produces all of them in purity ranges from that required for ordinary technical use to the most critical "reactor" grade where extremely high purity is a must.

Let's see how some of these salts are being used in industry. Perhaps you'll see a potentially profitable use for them in your own operations.

Th(NO₃)₄·4H₂O—Manufacture of incandescent gas mantles. A starting material for other thorium compounds and thorium metal. Nitrate is the standard commercial thorium salt.

ThO₂—Thorium oxide has the highest melting point of any metallic oxide (3220°C) and has use as a refractory material. It is also used with lanthanum oxide in the production of "rare-element" optical glass for unbelievably accurate aerial camera lenses. It is a source material for making thorium

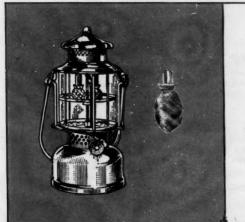
metal. The AEC and several private companies are studying its use in a thorium oxide-water slurry reactor. It has some use as a catalyst.

Thorium-magnesium alloys have high strength, good creep resistance and elastic modulus values in the 600-700°F temperature range and are used in jet engine castings, supersonic airframe constructions and satellite rockets where high temperature service is required.

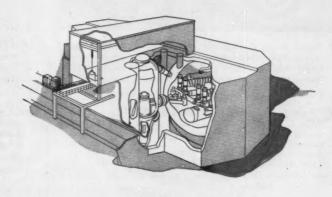
Thoriated tungsten (tungsten containing 1 to 2% ThO₂) is used as a filament in electron tubes and as non-consumable electrodes in inert gas-shielded arc welding.

Lindsay is the oldest and largest producer of thorium compounds for the government and private industry but we don't make thorium metal. Naturally, since we've been in the business 54 years, we've learned a good deal about this remarkable, versatile element. Data is available to you and the counsel of our technical staff is yours for the asking.

We feel certain that thorium has enormous potentials in a variety of industries and we want to share our knowledge with you. If you think that thorium chemicals may be useful in improving one or more of your products or processes—or in the development of new products—let us be of help.



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BY: J. F. Ryan, Manager Multiwall Department, Bag Division Fulton Bag & Cotton Mills St. Louis, Missouri



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Market Newsletter

CHEMICAL WEEK
November 10, 1956

The Middle East situation will have a definite impact on U.S. chemical markets. How great, of course, depends on whether hostilities will end in the next few days, or at least remain "localized," or whether the conflict heralds the start of World War III.

A CW survey of top marketing men points up a likely trend of events in U.S. markets:

Some commodity prices will feel immediate upward pressure, particularly among products traded on world markets (e.g., copper, rubber, vegetable oils, aromatics).

Producers who may have been contemplating price reductions on a number of chemicals, including toluol and other coal- and petroleumderived products, glycerine, and resins, will postpone their decisions.

Consumers who have let inventories of noncritical items decline because of ample supply will begin placing heavier orders.

Government planners may again be contemplating stepped-up buying of some "war chemicals" like toluene. (During the Korean incident military purchases for aviation gas and trinitrotoluene (TNT) tightened the market considerably.)

Summed up one observer: "It's still too early to predict what conditions will be, of course, but you can bet it'll be tougher than it was during Korea. Why? Over-all chemical demand has been rolling along in high gear, fast enough to keep most producers operating at or near capacity levels. If this conflict spreads and U.S. output can't be stepped up too much, the nonmilitary consumer will be pinched."

Custom smelters late last week boosted domestic copper prices 1 e/lb. It was a direct reversal of the down-trending of smelter tags noted in the past few weeks. Reason: firmness on the overseas exchanges because of the Egyptian crisis. Chances are that prices will edge up again; but at the moment, both custom smelters and primary producers in the U.S. are quoting an identical 36e/lb.

On the other hand, more copper chemicals are following the sulfate decline of last week (CW Market Newsletter, Nov. 3). Latest to drop: cupric and cuprous chloride, monohydrated copper sulfate, copper carbonate. New c.l. price on 55% carbonate, for example, is 353/4e/lb, a reduction of 2e/lb, from previous schedules.

At least one insecticide is going to cost more, but consumers have until Jan. I to think about it. Shell Chemical will then up its aldrin prices

Market

Newsletter

(Continued)

to 90 e/lb. (for technical material in c.l. quantities). The increase, 10 e/lb., will be the first since the company began turning out the technical grade.

The over-all domestic pesticides market is still dragging along in a seasonal doldrum, but there are signs of a definite pickup developing in some overseas outlets. No announcements of any big contract deals have as yet been made, but you can bet every export inquiry is getting a lot of attention.

Opening in Washington this week, for instance, are bids for some of the Pan American Sanitary Bureau's DDT business. Quantities asked for are relatively small (150 tons each of technical and 75% wettable material), but prices quoted will be significant in light of producers' reputedly long stocks here.

And just about overlooked in the heat of current United Nations discussions is the poser on what insecticide, DDT or dieldrin, will be purchased for the Mexican malarial program.

Incidentally, the UN's worldwide program for eradication of malaria—not merely control—will mean a substantial increase in pesticides consumption in '57. Indications are that '56 sales (rated a banner year) will be topped.

West Coast users of styrene-butadiene latexes have a new source of supply. Dow's Western Division is now operating its million-dollar-plus synthetic latex plant at Pittsburg, Calif. It's the company's fourth such installation. Others: Midland, Mich., Velasco, Tex., and Sarnia., Ont., Can.

The Suez situation has the rubber industry plumbing for government action to fill threatened gaps in natural rubber shipments from Southeast Asia. Says the Rubber Manufacturing Assn.: without the Canal it'll take 10-14 days longer to bring in Asian rubber. To meet the pinch, RMA has urged Defense Mobilization Chief Arthur Flemming to authorize an increase of 3,500 tons/month in nonspecification grades rotated out of the national stockpile, and an extension in the delivery period for civilian rubber to replace it. The plan is not new, has been turned down earlier by defense planners, probably will be again.

SELECTED CHEMICAL MARKET PRICE CHANGES-Week Ending November 5, 1956

DOWN		
	Change	New Price
Methacrylic acid, glacial, 98%, dms., truckloads, wks	\$0.075	\$0.47
Copper carbonate, 55%, bgs., c.l., wks	0.02	0.3575
Copper chloride, anhyd., dms., wks	0.0225	0.4525
Copper hydrate, dms., c.l., frt. alld. E. of Miss.	0.02	0.52
Copper sulfate, monohydrated, 35%, dms., c.l., wks., cwt.	1.25	23.75
Shellac, Lemon No. 1, bgs., 10-bg. lots	0.01	0.48

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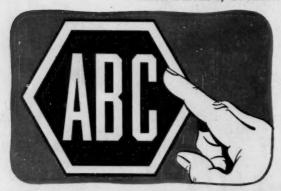
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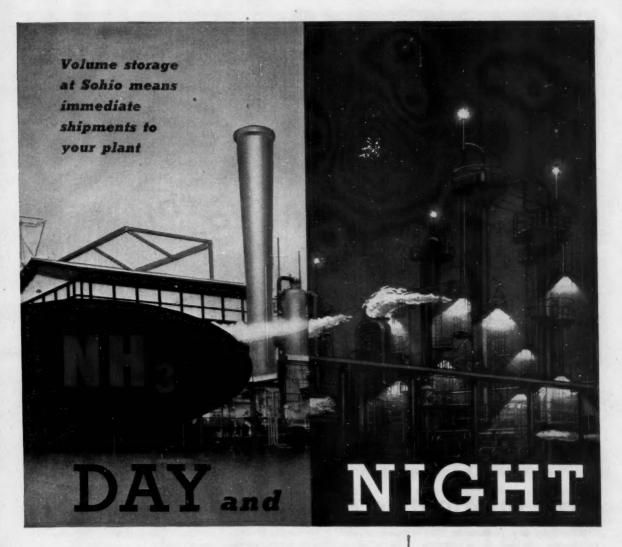


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BUSINESS often rides on how well sales staffs supply customers with product and market data.

GORDON DRAPER

How Informative Are Salesmen?

What's the key problem in salespurchasing relations? In a countrywide survey last week, CW found many top chemical executives particularly concerned about the difficulties of fulfilling the informational needs of their companies' purchasing research programs.*

Answers from chemical buyers, purchasing researchers and sales executives point up these major trouble spots:

 The noninformative salesman or supplier. The term applies both to the uninformed and the uncooperative those who don't know and those who won't say.

Depite the tremendous emphasis on product knowledge in modern selling, say some purchasers, too often purchasing isn't getting all it wants in the way of market information. And the salesman is still a key source of data.

Selling the idea of purchasing research. Purchasing men are well aware that they have to educate the salesmen they deal with in the workings and benefits of scientific purchasing. Too, purchasing sometimes finds the idea hard to sell within its own company.

 Reciprocity: Many buyers can cite reciprocal buying policies that look fine to the sales department but which cost the company money when nonreciprocating suppliers decline to bid. This cancels some of the benefits of purchasing research.

Salesman's Role: What part does the vendor company play in supplying purchasing research information and where does the salesman fit into the picture?

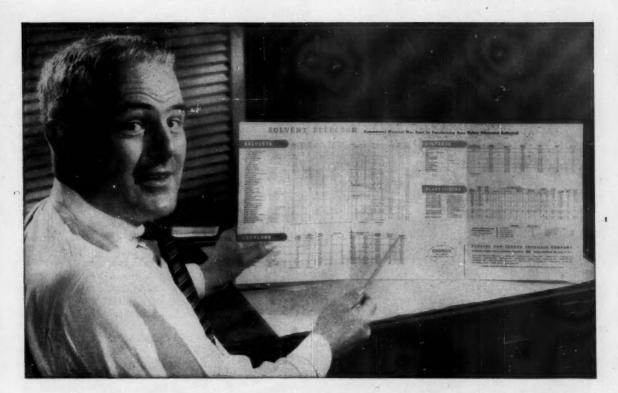
The vendor and his representatives are vital sources of data. That's why, although opinions vary, the majority of purchasers rate the well-informed -and informative-salesman at the top of the list.

The broad pattern seems to be this: the smaller the buyer's company, the more he relies on information from the vendor—especially the salesman. And the alert salesman has most of the answers at his fingertips, knows who the customer should see for help on special problems, opens doors to communication between the customer and

Help Coming?

Mutual problems of buyer and vendor may get a constructive airing at a joint meeting of the Chemical Buyers' Group of the National Assn. of Purchasing Agents and the Chemical Market Research Assn. Such a meeting, says the associations' executive groups, may be possible in '57 or '58.

^{*}Purchasing research is a term generally used to describe long-range studies of factors governing the supply of raw materials. Value analysis is sometimes included in the definition.



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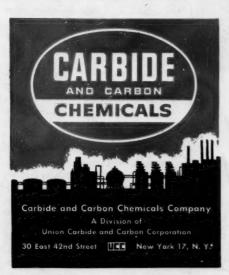
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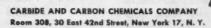
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SALES

his own market research or technical service groups.

The supplier that acts fast, follows up on the buyer's request and furnishes the market information or technical service will get the contract and keep it. And if a vendor has a reputation for liberal, accurate information, he can afford an occasional "no" without hurting any feelings.

On the other hand, the noninformative vendor means just one thing to purchasing: look somewhere else for the material. The vendor loses orders.

Remarked one purchasing man: "We don't deal with salesmen who give less than maximum cooperation."

What is meant by maximum cooperation? In most companies, buyers list these points of information that the salesman should be able to supply: product application data, new-product information, specifications and possible changes, availability, production figures, packaging methods and costs, freight equalization points. And some firms ask about local and national supply pictures, future market and price trends (although this data is usually expected to come from the vendor's market research group, not salesmen.

The alert salesman, "industry specialist, technical service man, product-marketing statesman rolled into one," says one Midwest purchasing director, "is welcome in my office any day."

But what does the buyer do when a salesman hands him an order blank, then answers "I don't know" or "I can't say," when the buyer asks questions? Clearly, the buyer starts looking around for a salesman who does know and will say—or uses other means to dig up the data he needs.

Sample reactions to less-than-satisfactory cooperation:

Buyer, Southern chemical firm: "By and large, most of the vendors are inexperienced in their particular line, act more as goodwill men than as sources of information. To overcome this, we're trying to establish close contact with the salesmen's home offices rather than with individual salesmen."

Western purchasing agent: "Many times we learn of new products through ads. It appears to take longer for producers to get new-product information into the hands of salesmen than into magazines."

Purchasing researcher, Canada: "Salesmen are seldom adequately informed on their companies' plant con-





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SALES

ditions and ability to do specific work. Some salesmen still forget all about the customer once they get the order."

Chemical purchasing analyst, New York: "I was trying to tell this salesman about mutual benefits of purchasing research, and he said, 'All right, you've told me what I can do for you—now what can you do for me?' We got an apology from the sales vice-president, but relations were hurt."

Pivotal importance of the salesman is underscored by the fact that the purchasing research group of at least one large chemical company always checks the reliability of a salesman's promises, notes whether his company backs up the word of its men in the field.

Admittedly, the above examples are those of a small but significant minority; there are many reports of excellent cooperation.

Both sales and purchasing are encouraging plant visits for firsthand studies of each other's problems, talks with engineers and production men. Vendors frequently offer their own research efforts to help solve customers' problems. One purchasing department helps its supplier with purchasing research, saves them both money.

Sales executives, generally, are becoming more alive to the demands of top-caliber selling that scientific purchasing calls for. What's more, many like the idea. It places emphasis on quality and service, they say—and they're busily priming sales staffs to handle such customers.

One Midwest sales manager put it this way: "Any supplier that doesn't go all the way in getting at the true facts, in giving them to the buyer, and in helping him to evaluate the facts as they relate to his program is just plain stupid."

The experience of one Northwest purchasing department speaks well for the future of free exchange of information in sales-purchasing relations: "For six years we tried to sell the idea of complete information exchange to one of our suppliers. We met just about all the problems. . . . This year, we've started to reap rewards: lower price, more profit for the supplier, rapid process improvements, bigger sales."

The clear conclusions: a free flow of information boosts sales and profits, and assures source of supply. This exchange plus purchasing research are becoming key considerations in purchasing-sales relations.

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GE'S SPALDING: 'Share technological

Silicones Schoo

Boosting a salesman's product knowledge is a good way to increase sales efficiency. Boosting a customer's knowledge of your product is still a better way. And when the latter is done directly, sales are almost sure to follow. That's why General Electric's Silicone Products Dept. recently set up a school of silicone rubber technology for its customers at Waterford, N.Y.

The course represents the second half of a program GE launched last January to upgrade silicone rubber technology and fabricating techniques. The first effort was the distribution, via field salesmen, of a comprehensive handbook to all the people on the company's fabricator list.

Conducting this course isn't typical GE procedure, though the company does have a school for Carboloy cutting tool users (conducted by another company department). Nor is the course patterned after any other operation used to sell other products—resins and fluids—of the silicone department.

The slightly offbeat approach can, in a sense, be attributed to two big factors: silicone rubber is the largest single silicone product—30% of silicones sold are elastomers; and there's



know-how with fabricators.'

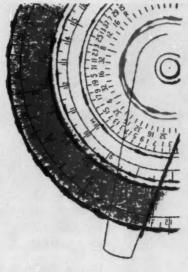
Soups Up Sales

a tradition of heavy technical assistance—dating back to the introduction of the synthetic rubbers—that obtains in the rubber fabricating industry. Fabricators expect help. Here's how GE provides it:

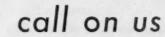
Several months before a course is held, district sales managers and field salesmen decide who would benefit most from the course, then send invitations. The "students" pay for transportation; GE picks up the tab for the rest. Attendees usually total 10 or 12.

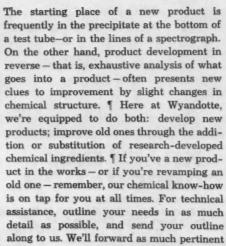
Sales Slant: The course is a two-day affair—"long enough for the men to get to know one another, not too long to drag; leaves them with the feeling that they've got more to learn; makes them want to come back." The length of each lecture, duration of the question period, transportation to and from plants to lodgings, etc., were worked out ahead of time by bringing in field salesmen, running them through the course as though they were guests, asking them for their critical evaluation.

First-day sessions cover such topics as production of silicone gums and compounds and actual compounding, include a visit to research and manufacturing facilities. Second-day subCalculating on a new



product?





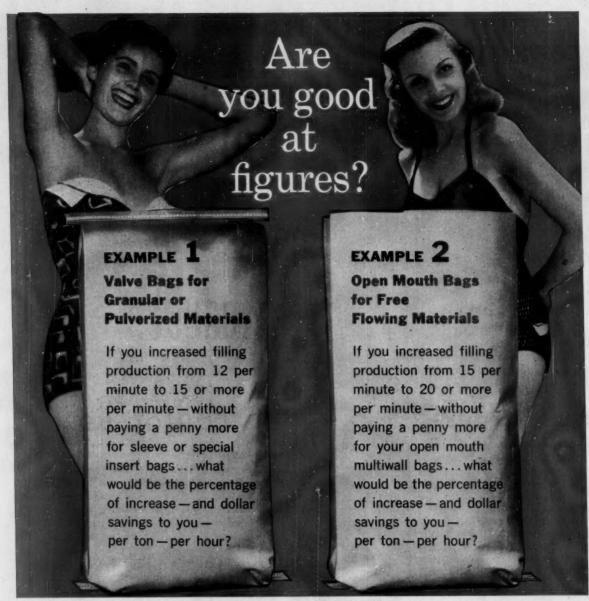
data as we have (and we have quite a bit).

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jects treat molding, extruding, testing and control, and the students visit the quality control laboratory. Each lecture lasts about an hour with a halfhour for questions.

Students are reserved at first, but take to the course after the first few lectures, which provide plenty of time for valuable give-and-take. There are five technical men, headed by David Spalding, who are instructors.

At each course, besides picking up general information, many of the men offer specific problems for solving. These problems don't get an airing before the others but are discussed in private with GE's technical service men on hand.

At the conclusion, attendees get a "degree" in the form of a certificate of attendance as well as a class photograph. They're also asked for suggestions on improving the course.

Though the course provides technical service to rubber fabricators—a custom of the trade—there are other specific reasons why GE has set it up. Among them:

- Sales of silicone rubber are usually made through the technical man, not through purchasing. It is low-pressure selling, orientated to service rather than price.
- With a new product like silicone rubber, a little education avoids misuse of material, erratic-quality (like that obtained by some plastic fabrication in the past).
- By helping fabricators with knowhow in compounding, the trend to gums rather than to compounds is accelerated—and GE is more interested in selling gums than compounds. It's more profitable, leaves technical men free to improve on the quality of gum.
- It provides an opportunity for a free interchange of information between fabricators. Fabricators don't put all their secrets on the table, but plenty of basic know-how is circulated.
- It's a good way to anticipate technical service. Rather than doing it on an individual basis, bringing in a heavy concentration of technical assistance in a give-and-take session, they can provide an over-all picture in depth.

Present plans call for the course to be repeated in 1957, probably along the same lines as this year's sessions. There will be four meetings, alternat-

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ing between customers chosen by Eastern and Western sales district managers.

Both GE and its fabricator customers are enthusiastic about the course, feel it's been a mutual help. It has put the fabricators in a position to see that GE is interested in their problems, is doing something to help them with their marketing problems. Said one GE official, "We're not primarily interested in getting more people into silicone rubber production—we're trying to provide a larger market for those that are already in it."

Along the same line, Spalding told CW: "It's a long-range sales tool for us. When we started, we didn't know what the reaction would be. We figured if it flopped, drop it; if it worked, take it and run with it." Judging by the experience so far, GE is going to run.

COMPETITION

 Union Carbide will erect a large regional office center at Moorestown, N.J. The structure, costing more than \$500,000, will house administrative and sales organizations of the firm's several divisions now in offices in various Philadelphia buildings. The office will serve South Jersey, most of Pennsylvania and Delaware.

 Du Pont has named Howe and French, Inc. (Boston), distributors of cyclohexanone and cyclohexanol in the New England area.

 The industrial chemical division of Wall-Western, Inc., has merged with Great Western Chemical Co. of Oregon. The companies, which are sales agents and distributors of industrial chemicals and raw materials, will operate under the name Great Western Chemical Co.



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Ageny-Compton Adv. Inc. AMERICAN FLANGE & MANUFACTURING	
Agency-Freiwald & Coleman, Adv.	. 00
AMERICAN HARD RUBBER CO	58
Agency-N. W. Ayer & Son, Inc.	12-13
Agency-The Aitken-Kynett Co.	
& CARBON CORP. Agency—J. M. Mathes, Inc.	57
BARNEBEY-CHENEY CO	. 68
BEACON CHEMICAL INDUSTRIES, INC	. 78
Agency—Givaudan Adv., Inc.	. 68
BERNSHIPE CHEMICALS, INC. Agency-Givaudan Adv., Inc. CARBIDE & CARBON CHEMICALS CO., DIV. OF UNION CARBIDE & CARBO CORP.	
Arenew T W Mathen Inc	, 00
CELANESE CORP. OF AMERICA	
Agency-Michel-Cather, Inc.	. 49
Agency—J. Walter Thompson Co.	. 92
CLIMAX MOLYBDENUM CO. Agency—G. M. Basford Co.	. 45
Agency—The W. N. Gates Co.	. 42
COSDEN PETROLEUM CORP	. 4
Agency—Sewell Adv. Agency, Inc.	. 90
DOOR-OLIVER, INC. Agency—Sutherland-Abbott, Adv.	. 60
DOW CHEMICAL CO., THE	. 67
DU PONT DE NEMOURS & CO., INC., E.I. POLYCHEMICALS DEPT. Agency—Batten, Barton, Durstine & Osborn	75
EASTERN STATES CHEMICAL CO	. 38
EASTMAN CHEMICAL PRODUCTS, INC Agency—Fred Wittner, Adv.	. 47
EL DORADO DIV., FOREMOST FOOD (CHEMICAL CO	36
Agency—Sidney Garfield & Assoc.	. 61
EMERY INDUSTRIES, INC. Agency—Ruthrauff & Ryan, Inc. EMPIRE TRUST CO	. 97
Agency-Doremus & Co.	. 51
ENJAY CO., INC. Agency—McCann-Erickson, Inc. EVANS RESEARCH & DEVELOPMENT	
Agency-Ritter Sanford & Price Inc.	. 64
FIRESTONE PLASTICS CO. Agency—Grey Adv. Agency, Inc. FULTON BAG & COTTON MILLS. Agency—Fitzgerald Adv. Agency	. 37
FULTON BAG & COTTON MILLS	. 82
GENERAL AMERICAN TRANSPORTATION CORP., LOUISVILLE DRYER DIV Agency—Weiss & Geller, Inc.	. 53
	. 63
GENERAL ANILINE & FILM CORP	D
Agency—Atherton & Currier, Inc. 4th	Cover
Agency—The Griswold-Eshleman Co.	. 71
GGODYEAR TIRE & RUBBER CO., INC. Agency-Kudner Agency, Inc.	. 1
Agency—Griswold-Eshleman Co.	. 69
GREAT LAKES CARBON CORP	. 43
GULF OIL CORP. Agency—Ketchum, MacLeod & Grove, In	c. 72
HEAVY MINERALS, INC	. 44
Agency—Fuller & Smith & Ross, Inc.	. 20
HILLS-McCANNA CO	. 14
HOOKER ELECTROCHEMICAL CO Agency—Charles L. Rumrill & Co.	. 19
INTERNATIONAL PAPER CO	Gover
Agency—Batten, Barton, Durstine & Osborn	Inc.
Agency-Arthur A Judson Inc	90
UNION CARBIDE & CARBON CORP Agency—J. M. Mathes, Inc.	. 39
LINDSAY CHEMICAL CO	81
LOCKWOOD GREENE ENGINEERS, INC. Agency—The House of J. Hayden Twiss	80
LUCIDOL DIV. WALLACE & TIERNAL	N. 97
Agency—Barber & Drullard, Inc. MAYWOOD CHEMICAL WORKS	90
MAYWOOD CHEMICAL WORKS Agency—Charles W. Curts, Adv. METAL A THERMIT CORP. Agency—RAF Advertising, Inc.	70
Agency-RAF Advertising, Inc.	26
METASAP CHEMICAL CO	

10, 1000	
MONSANTO CHEMICAL CO	6-7
NATIONAL ALUMINATE CORP	10
NATIONAL CARBIDE CO., DIV. OF AIR RE-	85
Agency-G. M. Basford Co.	46
NEW YORK STATE DEPT. OF COMMERCE Agency—Kelly Nason, Inc., Adv.	
Agency—Lewin, Williams & Saylor, Inc.	93
OLDBURY ELECTRO-CHEMICAL CO Agency—Briggs & Varley, Inc.	80
PFIZER & CO., INC., CHARLES	40
PRESSED STEEL TANK CO	48
PROCON INC	0-31
Agency—Sam J. Gallay, Adv. PULP CHEMICALS ASSOCIATION	78
R. C. CAN CO. Agency—Batz-Hodgson-Neuwochner Adv.	66
DELLIV TAR & CHEMICAL CORP	55
Agency—The House of J. Hayden Twiss RICHARDSON SCALE CO	5
Agency-O. S. Tyson & Co., Inc. ROHM & HAAS CO	65
Agency-Arndt, Preston, Chapin, Lamb & R	een,
Agency—J. Walter Thompson Co.	16
FOSTER D. SNELL, INC	56
Agency—Klau-Van Pieterson-Dunlap, Inc.	87
Agency—Russell T. Gray, Inc.	11
TAYLOR FORGE & PIPE WORKS	8-9 keed.
Inc.	15
Agency—Crawford & Porter Inc.	
Agency—Doyle, Kitchen & McCormack, Inc.	79
TITANIUM PIGMENT CORP. Agency-Doyle, Kitchen & McCormack, Inc., UNITED STATES POTASH CO., DIV. OF UNITED STATES BORAX & CHEMICAL	
GORP. Agency—McCann-Erickson, Inc.	92
VIRGINIA CAROLINA CHEMICAL CORP. Agency—Albert Sidney Noble Adv.	. 35
WALLACE & TIERNAN, INC.	50
WESTYACO CHLOR-ALKALI DIV., FOOD MACHINERY & CHEMICAL CORP. 2nd (Agency—James J. McMahon, Inc.	Cover
WOLF & CO., JACQUES	3
Agency—Riedl & Freede, Inc. WYANDOTTE CHEMICAL CORP	14-95
Agency—Brooks, Smith, French & Dorrance,	Inc.
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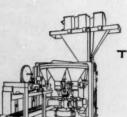
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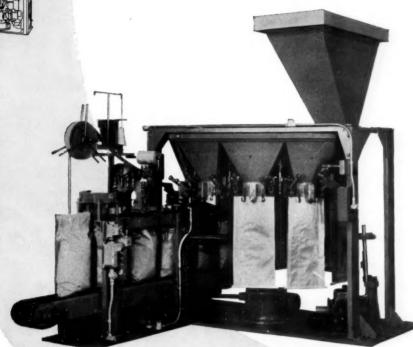
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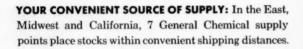
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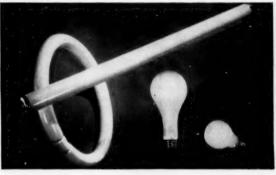
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